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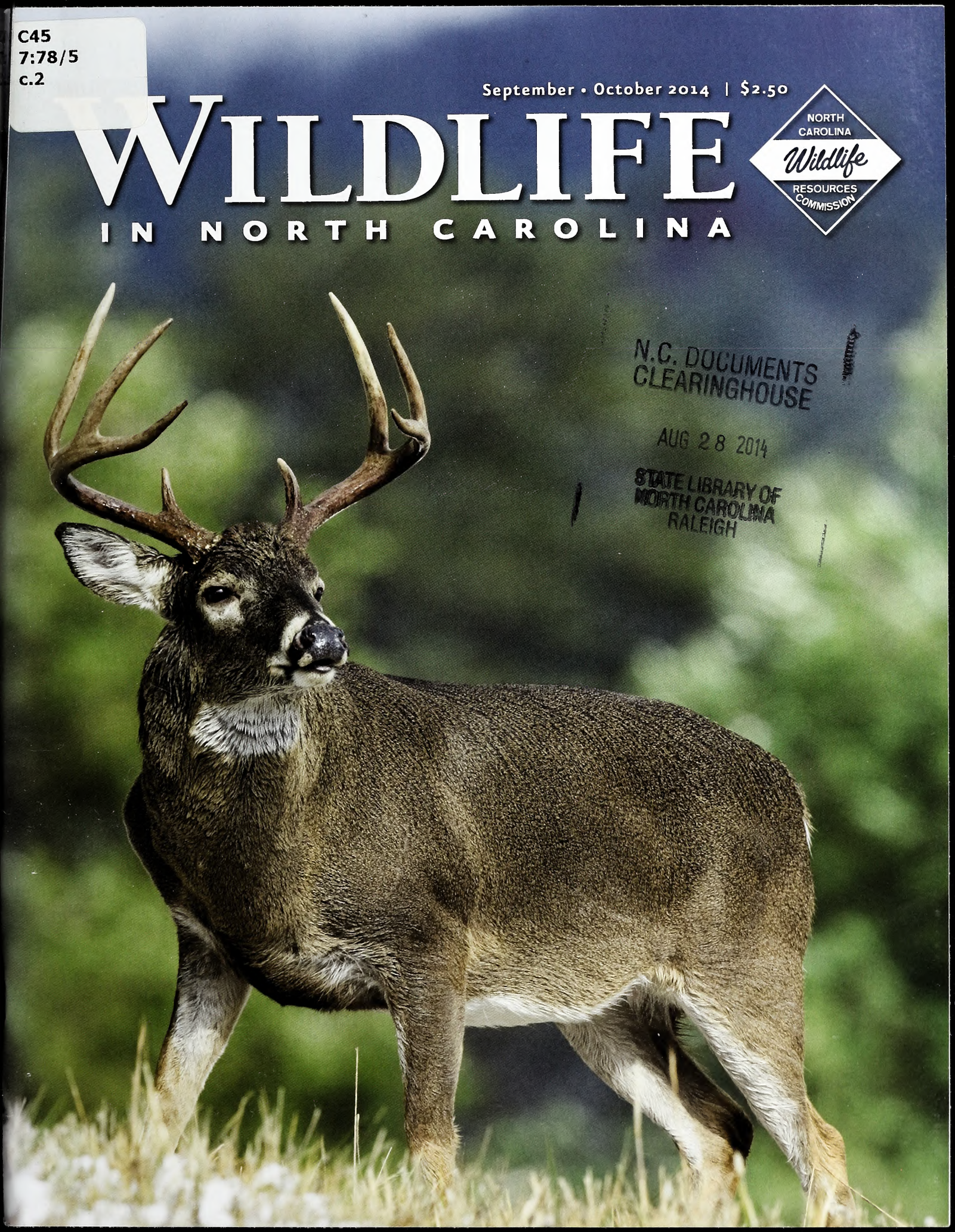
WILDLIFE IN NORTH CAROLINA

NORTH CAROLINA Wildlife RESOURCES COMMISSION



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The narrowleaf pond lily, which is a rare plant for the state but common in Lake Waccamaw, provides cover for aquatic animals.
PHOTOGRAPH BY TODD PUSSER.

Volume 78 | Number 5

WILDLIFE IN NORTH CAROLINA

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Cover: The white-tailed deer is the most popular big-game species in North Carolina. The state has a population of more than 1 million animals.
PHOTOGRAPH BY BRIAN BOWER.

Wildlife in North Carolina is the official educational publication of the North Carolina Wildlife Resources Commission. It is dedicated to the sound conservation of North Carolina's wildlife and other interrelated natural resources and also to the environment we share with them.

EDITOR'S NOTE

I sometimes wish, although passingly, for the Septembers of my childhood, in the days before air conditioning forced Southerners indoors. In those times, neighbors would come calling and adults and children would sit in the yard or on a large porch, depending upon where we had gathered. The adults talked and many of them smoked, their cigarettes little red winking beacons in the darkness.

We children would listen for as long as our short attention spans would allow before we wandered off into the darkness, playing games of army or maybe just sitting apart and watching lightning bugs or talking of the baseball pennant races.

If the adults were discussing the possibilities of fall bass fishing or the upcoming quail season, we might linger for a while. I would especially if quail were the topic, if the men began recounting where they had seen birds during the summer as they farmed. Most of the coveys were known to me; I remember them still, or at least the names I called them—the Swamp Covey, the Barn Covey, the Cedar Covey. I can see them now, see them flushing, see them landing as pairs or singles, sometimes even seeing one or two tumble from the sky.

All of that is gone—the people, the birds, even the land—after a fashion—for it is now planted in either houses or fescue pastures. The fact that I remember all those things after so long can be attributed to several factors, but one I am convinced is the many hours I spent listening to talk of them. That easy, evening talk is missing from the South now, and I blame it on air conditioning.

When you eliminate the day-to-day drudgery of living and working in the oppressive heat of a Southern summer, you've lost a good deal of what it means to live in the South. I was reminded of this a couple of years ago when either my wife or I had the notion, possibly heat-addled, to go trout fishing on a 90-something degree day in July. We headed an hour into the mountains—not far enough—to a wild trout stream I know of.

It was going to be decent hike, a couple or three miles, but when we encountered the first laurel hell, where the breeze stilled, the temperature seemed to rise and I could swear I smelled a sour, wet dog, the adventure was done, steamed, roasted and preserved in memory by the fires of the South in summer.

Jim Wilson

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POISON IV-Y-Y-Y-Y,

POISON IV-Y-Y-Y-Y

WRITTEN BY DAVID S. LEE & PHOTOGRAPHED BY MARISSA MCGEE

Measles make you lumpy
And mumps'll make you lumpy
And chicken pox'll make you jump and twitch
A common cold'll feel yah
And whooping cough can root yah
But poison ivy, Lord'll make you itch!!

Itching For A Cure

Thank you for the well written article, "Poison Iv-y-y-y-y" by David S. Lee. While reading, I could not help but think of the time I went blackberry picking in a pair of shorts and t-shirt, getting covered with chiggers and poison ivy. The only medication my parents offered was calamine lotion. I looked like a walking zombie after covering my arms and legs with that stuff.

Many years later, my wife's grandmother was telling us about treating one of her children after he was left in a shady spot, unsupervised, while the rest of the family worked the fields. It seems the child found his way into a poison ivy patch and got covered head to toe. She found a cure in a 1927 issue of *Indiana Botanical Gardens* magazine, which she still had in 1974. That magazine was full of Indian remedies for many different ailments.

The remedy for poison ivy said to take the bark from the north side of a sycamore tree and dry it. Next break it in thumbnail size pieces, place them in a ceramic bowl or cup (not metal container), pour boiling water over them and let steep for about 15 minutes. When the "sycamore tea" was brewed, drink the solution. Grandmother said she followed those instructions and had the child drink it before bedtime. The next morning, the child's skin was clear.

I have been lucky over the years avoiding contact with that awful plant. Several times I have offered the recipe to others suffering from contact with poison ivy, and they would not try it — even after visiting their doctor and taking antihistamines which did no good. A couple years ago, my wife and I were shopping in a local home improvement business, when the clerk helping us showed us her arms. She said it was on her stomach too. Needless to say, she was miserable and had been suffering for over a week, even after trying her pharmacist's suggestions. Feeling sorry for her I asked if she would try a home remedy, if I brought it to her. She agreed. So early Sunday morning I harvested sycamore bark, dried it and took the bark to her before my wife and I headed off to Bible study. We were back in that store a week later when we saw this lady running down the aisle, waving her arms and calling out to us.

In an excited voice, she proceeded to show us her arms, then pulled up her shirt to show us her torso where the poison ivy had been. The only thing left were the scars where she had scratched. She was excited to tell anyone who would listen how she was cured overnight. There is definitely a cure, but only a few know about it. I cannot confirm, but have heard drinking jewel weed tea actually prevents future reactions to poison ivy.

Lenny Freeze
Troutman

Editor's Note: While home remedies can and do work, it's always best to check with medical personnel before trying something with which you're unfamiliar.

Thanks for the fun and fact-filled article on poison ivy by David S. Lee. Calamine lotion may alleviate the misery, but I like iodine. It dries the skin and seems to speed the healing process. I prefer the non-clear liquid, whose orange color reminds me not to scratch the affected area. When it starts to itch, I spread extra drops of cooling iodine.

George Reiger
Locustville

An Answered Call

Mike Zlotnicki's article, "Heeding the Calls," in the May–June issue was very timely as I pursued my first wild turkey this spring. I grew up a deer hunter in the woods of Vance and Granville counties, and never saw a wild turkey until the Wildlife Commission began to reintroduce them years ago.

Everything I knew about wild turkeys came from stories my dad passed down, along with a hand-made call that belonged to my granddaddy.

It was that call, however, that has been my treasure, made from a turkey bone and fig wood. I've kept it safely stored away as a keepsake of my dad and granddaddy, pulling it out every once and a while to test its fine sound. This spring, I finally decided I was going to take my 12-year-old son and try our hand at turkey hunting.

On our first time out, we had a couple of gobblers going, and were able to put eyes on one nice bird all puffed out, with his tail fanned wide, and strutting like king of the woods. I was hooked. We didn't get a shot, but came away with plans to go for the remaining two weekends of the season. That week, I received my issue of *Wildlife in North Carolina* with a photo of a turkey on the cover. Timely, indeed. I read about the old calls, call collectors and types of calls. The only turkey hunting advice that jumped out from the article was "don't over call, and be patient."

The next weekend, with my granddaddy's vintage call in hand, I set up for a morning hunt. As the dark turned to light, the gobbling began and so did the excitement. I answered almost every gobble with a few chirps from my call. I had to remind myself "be patient." After not hearing a gobble for a while, I decided to make a few chirps on the call. Within a short time, I had two gobblers standing within 25 yards. With a slow rise of the gun, I soon had my first wild turkey. It's made for a great story that I have shared with many, and the special part of the hunt was using that ol' turkey call that belonged to my granddaddy.

Craig O'Brien
Raleigh

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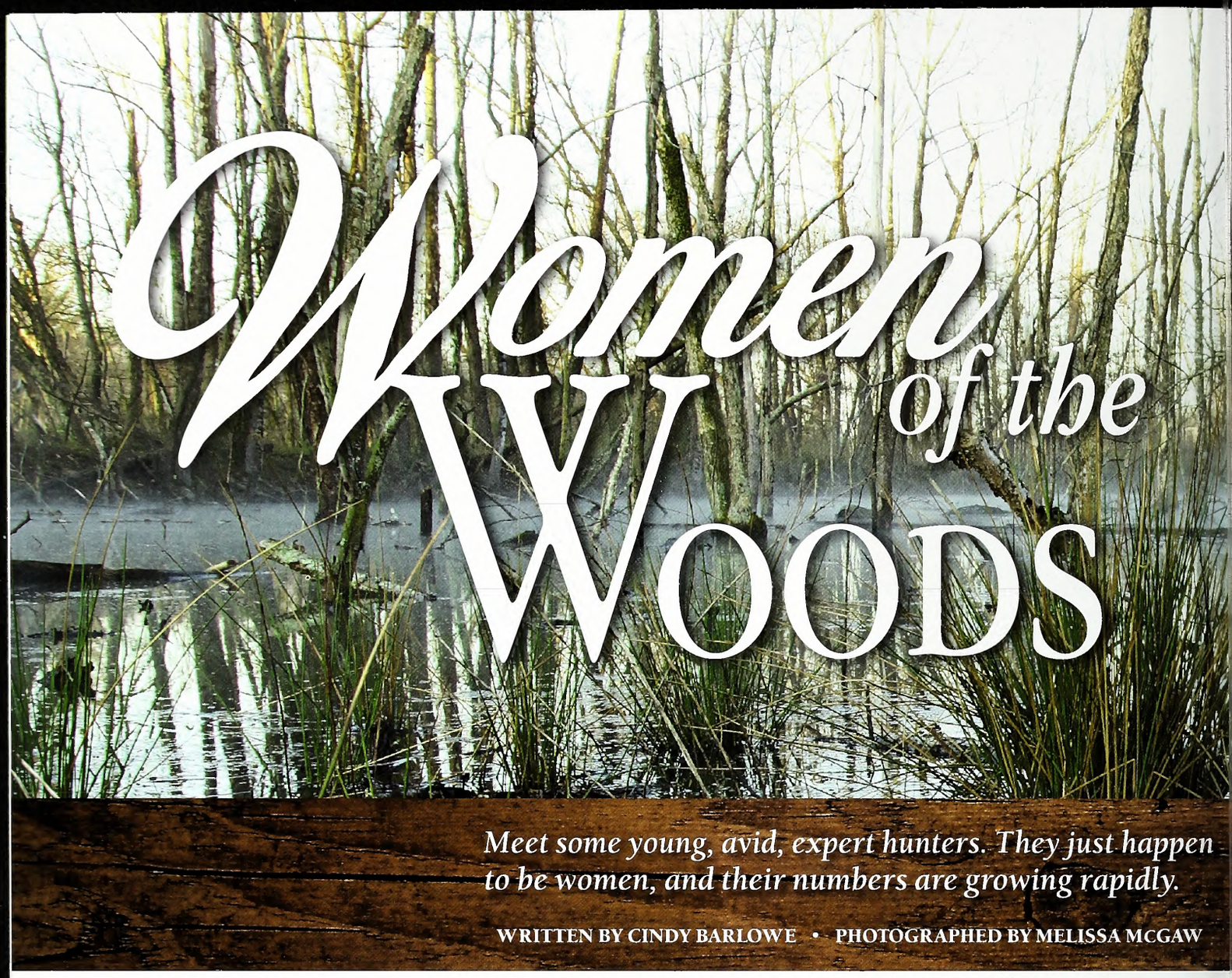

Women of the Woods

Meet some young, avid, expert hunters. They just happen to be women, and their numbers are growing rapidly.

WRITTEN BY CINDY BARLOWE • PHOTOGRAPHED BY MELISSA MCGAW

IN the shadows cast by Charlotte skyscrapers, two executives meet for a brief conversation. Professionally dressed, they embody the youthful energy, urban, chic appearance and enthusiastic work ethic that define this thriving North Carolina city.

"So, I hear you got your first bird?"

"I did! He was huge, 20 pounds, 10-inch beard, giant spurs. Did you have any luck this year?"

"With my work schedule, I can't keep up with all the seasons; decided I would just stick to bear this year. Got a really nice one last year. Let's get together soon, have a cup of coffee or something?"

"Sounds great. See you later."

The blare of a car horn and other bustling street traffic noises drown out the click of high heels as the two young women head in opposite directions.

Not so long ago, hunting was regarded as a male activity. Whether for sport or food, men dominated this arena, and only in recent years have females begun to change the image of the typical North Carolina hunter. Concern about food sources, escape from stressful daily lives and the thrill of the hunt are all reasons women, particularly young women, give for becoming hunters. Breaking the stereotypical mold, these women skillfully manage weapons, and their favorite hunting locales are far from department store shopping bins. Plus, they admit to an affinity for being in the woods where they are able to relax and commune with nature.

According to the N.C. Wildlife Resources Commission's Harvey White, the past five years have seen a steady increase in the number of hunting licenses issued to females. Over 22,000 women received hunting licenses for 2013, compared to fewer than 16,000 in 2009. Although there are almost 10 times more North Carolina hunting licenses issued to males than to females, women hunters are not only increasing in number, they are also becoming a younger group. More than half the licensed female hunters for 2013 are younger than 30 years old.

Twenty-five year-old Jenny Pritchard, a registered nurse, embodies the face of North Carolina's modern young female hunters. Employed in the Medical Intensive Care Unit at Wake Forest University Baptist Medical Center, in Winston-Salem, Pritchard is used to being on her feet for hours on end. Many of her patients are unresponsive and Pritchard frequently finds herself consoling the patients' family members, offering encouragement and support through kind words and smiles. Often, patients in the Medical Intensive Care Unit are physically unstable, and Pritchard must be constantly prepared to perform

Macayle Kiger of Lenoir is a trapper as well as a hunter. She uses outdoors activities as an outlet to alleviate the stress of her nursing job. Deer, turkey and feral hog hunting rank high on her list.

intensive life-saving measures, usually with little warning. Some days, when the physical and emotional aspects of her job drain her of energy, she imagines herself walking through familiar western North Carolina woodlands, "connecting with God and nature." For Pritchard, hunting offers the opportunity to enjoy time alone, away from "cell phones, ringing alarms and intrusive technology."

Pritchard began stalking white-tailed deer when a family friend became her hunting mentor and took her to hunt on his land. At 16 years old, on her first hunt, Pritchard bagged a deer and became hooked on the sport. While she uses a .243 Ruger rifle during gun season, Pritchard prefers her Parker crossbow for deer hunting. Although it is a challenging weapon, Pritchard finds bowhunting to be an enjoyable and rewarding experience. In addition to deer, Pritchard has also hunted turkey and bear, but admits deer hunting is her favorite.

A compassionate public servant, Pritchard often volunteers through local organizations and has even traveled with a medical mission group to Haiti, where her skills and engaging smile were appreciated by the people she assisted. Pritchard recently enlisted in the U.S. Air Force and believes her hunting experiences have helped prepare her for the demands of becoming a military officer. "Just as in military training, a lot of diligence and repetition are incorporated in hunting and learning the skills for shooting a bow or a gun. Also, enduring the different weather that comes along with hunting outside for hours has helped me prepare for a military career. I think being a successful and avid hunter takes dedication and hard work and those traits can be helpful for military training, or any career or job, as far as that goes."

Working in a hospital's intensive care unit requires a fit body and Pritchard strives to maintain a healthy diet. Although she occasionally accepts the convenience of a fast-food meal, Pritchard makes a conscious effort to avoid processed foods and shops for organically grown produce. Having a ready supply of healthy meat is important to Pritchard and venison tenderloin, sausage and jerky are favorite foods at her home. With her tight work schedule, Pritchard receives assistance from someone who processes her deer and provides her with packaged venison she stores in her freezer. Along with knowing the source of the food, Pritchard also notes that venison is a good economical choice, as a single animal can provide months of meat-based meals for a family.

Another young woman who is concerned about the source of her food is 23-year-old Kate Barlowe, a business analyst in project management for Wells Fargo Securities in Charlotte. After bagging her first turkey in

Jessica Tart started hunting at the age of 5. She took her first deer at age 8 and now enjoys hunting waterfowl — especially puddle ducks — with the aid of her German shorthaired pointer Lexie. Opposite, Macayle Kiger hunts deer with bow and arrow exclusively.

2012, with a 20-gauge Remington 870 and tasting the difference of her turkey as opposed to an industrially grown bird, she is now an avid hunter. Fortunately, Barlowe's brother, a chef, is an accomplished butcher and after killing her turkey, her first call was to him. Within hours of her harvest, Barlowe's turkey was portioned and packaged for freezer storage.

Barlowe earned a degree in systems engineering and a minor in mathematics, tools that provide job skills that assist her in working on projects from conception to completion, although she says the most stressful part of any project is the implementation stage. Since her employment, she has worked on two major projects for her company and although project implementation often requires long hours and attention to detail, Barlowe enjoys the physical and psychological demands associated with this step, but when her workdays are particularly hectic, she looks forward to engaging in an activity that is unrelated to her job. Hunting provides a different kind of physical work and Barlowe says just being in the woods is "both relaxing and exhilarating."

Regarding her father, Richard, and a family friend, James Todd, III, as turkey hunting mentors, Barlowe vividly recalls her second turkey hunt as one of her most exciting hunting experiences. "I went with my dad and his friend, James, who is an excellent turkey caller. James called a turkey in and the bird came within approximately 40–50 feet of us. For those who have never heard a wild turkey call in the early morning woods when most other things are silent, it is a chilling sound that you will likely never forget. This particular day, the turkey jumped on top of a log and began drumming and strutting. He put on quite the show for about 15 minutes until he decided there was nothing there for him and left. Although I was not able to gain a shot, it was an experience that I will never forget and left me with the desire to continue turkey hunting."

Barlowe credits her food source awareness to work on her family's organic produce farm and a college class assignment that included viewing the documentary, "Food, Inc." Now that she lives in Charlotte, Kate shops for organic produce at local farmer's markets and enjoys stocking her freezer with wild game. Although she has yet to harvest her first deer, her hunting mentor, who is also her grandfather, Bruce Hamby, encourages her to keep trying. "My grandfather has hunted deer for the majority of his life, as is evident through the many trophies displayed throughout his house. 'Pa Bruce' is very wise, checks his game camera regularly and has a strong idea of where the deer will be and how they will move."

Twenty-three-year-old Macayle Kiger is a female hunter who is extremely knowledgeable about the habits of whitetails. Growing up in Florida, where her family raised deer as a hobby, Kiger helped to bottle feed the four initial animals her father brought from Illinois to their farm, and as the young animals grew and the herd expanded, she became fascinated with whitetails. Although the family never hunted their own deer, Kiger found deer hunting in the wild to be a challenging and exciting sport.

That rush of adrenaline that comes from hunting is one of the reasons Kiger hunts.

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Employed by Horizon Surgical Specialists in Lenoir as a nurse for vascular nurse practitioner Lindsey Lance and general/dialysis access surgeon Randal Bast, Kiger finds the most stressful part of her day is facing the unknown. Accidents, sudden illness and other unscheduled emergencies often drastically alter Kiger's scheduled workday, and she must be prepared to change directions at a moment's notice. Hunting deer, feral hogs and turkey and her latest hobby, trapping, all serve to offer Kiger an outlet from on-the-job stress.

Kiger's first hunting mentor, her father, Matthew Betts, took her along on a deer hunt when she was 5 years old. After killing her first deer at age 7 with her .223 rifle, a Christmas gift, Kiger later hunted with muzzleloaders and shotguns, but after her husband offered to teach her to use a bow, she no longer uses any other weapon for deer hunting.

"Most men hunt with guns and when they find out I am a bowhunting woman, they are taken aback."

"Hunting with a bow is the most challenging and exciting way to hunt; you get an adrenaline rush like you wouldn't expect. It is the thrill of that animal being 30 yards or less from you and realizing at any second it could possibly spot you. I have not picked up a rifle in over four years." Kiger's first kill with her Mathews Z7 compound bow was a buck that was only about 20 yards from her when she let her arrow fly. Although she shot many deer while she was growing up, Kiger says she never felt such a sense of accomplishment as when she took her first deer with a bow.

After hunting for years in Florida, Kiger revels in the beauty of western North Carolina, which she names as her favorite hunting grounds. The diversity of wildlife in her own backyard is appealing to this versatile hunter and she eagerly anticipates the challenges associated with each hunting season. A bonus

to successful hunts is the fresh meat she and her husband, Jonathan, process themselves. Kiger packs enough venison burgers, roasts, steaks, jerky and sausage into her freezer to last until the next hunting season, and she adds venison to any dish that would typically use beef. Reiterating Pritchard's observation, Kiger notes that harvesting wild game "is a great way to save money in this struggling economy."

The rich flavor of game meat is one reason 27-year-old Jessica Tart is drawn to hunting, but for this accomplished markswoman, the joy of being on the water or in the woods is an incomparable feeling that offers immeasurable rewards. Since her first deer hunting trip at age 5 with her father and hunting mentor, Barry Tart, when Jessica bagged an eight-pointer with a Remington 20-gauge youth model that has been used in her family for generations, she has been hooked on the sport.

As a lawn and garden nursery specialist for a major home improvement center, Tart's horticultural degree is put to good use when customers ask for advice about plants or pest control. Maintaining healthy plants in the garden center is often a challenge when weather conditions are less than ideal and Tart must be prepared to protect plants from temperatures that are either too hot or too cold for their optimum growing environment and she must constantly check to see that moisture levels are correct. When planting seasons are in full swing and her days are filled with the physical demands of long hours on her feet, this Kinston resident looks forward to hunting adventures, particularly when she can hunt her favorite game, waterfowl, in her favorite hunting grounds in Hyde County.

For her 16th birthday, Tart received a Benelli Super Black Eagle shotgun, and she quickly became an excellent shot, bagging well over 1000 ducks since she became a bird hunter. In recognition of her skill, Tart receives clothing and hunting gear from professional sponsors and using ABC Waterfowl Calls' double reed duck call, handmade by Allen Bliven, is a perk Jessica enjoys. Although most of her harvests are used for food, occasionally Tart will mount a special bird, such as a Northern shoveler, known informally as a "Hollywood" or a "Smiley," as a trophy display for her home. Preferring to hunt puddle ducks, as opposed to diving ducks, which she says have a fishy flavor, Tart often enjoys preparing meat she harvests. For one of her favorite preparations, Tart removes the duck breast, wraps it in bacon, adds some Worcestershire sauce and either bakes the breast in an oven or grills it over hot coals until tender.

When asked about unique hunting experiences, Tart describes an adventure with two N.C. Wildlife Resources Commission biologists, Tom Padgett and Deanna Noble, whom she joined on a trip to Lake Mattamuskeet. After harvesting a mixed bag of birds, including wigeons, canvasbacks, green-winged teal and wood ducks, snow began to fall and the white flakes whirled around the hunters and fell onto the water, creating the illusion of being inside a snow globe. Although it was a cold day, Tart fondly recalls it as her favorite hunting experience. Of course, she notes, every hunting trip is "an incredible experience. Watching a beautiful sunrise break the quiet darkness and hearing birds chirp as they wake, seeing ducks fly overhead, the whole forest is waking up. There is no comparison to such an experience."

Pritchard, Barlowe, Tart and Kiger frequently surprise coworkers and acquaintances when they discuss hunting. Pritchard says a typical reaction is "What? You are a hunter? But you are so small!" Although Pritchard admits the sport requires a certain amount of skill and strength, such as being able to accurately and safely manage a weapon or move a heavy deer carcass across distances, she believes hunting is an activity almost anyone can do. Intrigued by Pritchard descriptions of her hunts, a female coworker, who is a physician, asked to join her on a future outing.

Barlowe's grandfather created a shadowbox showcase for her first turkey and included the tail, beard, spurs and the spent shell she used to shoot the bird. When visitors see the

trophy in her apartment, they almost always express surprise. Shortly after accepting her job in Charlotte, Barlowe casually mentioned to a coworker she would be taking a day off to go turkey hunting. "I think his jaw nearly dropped to the floor and after regaining his composure, he explained he loves hearing things about people that shock him, and this was definitely one of those things!"

Kiger says people are often surprised to learn she hunts, but are most intrigued by the fact that she uses a bow to take down deer. "Most men hunt with guns and when they find out I am a bowhunting woman, they are taken aback." Her coworkers are interested to hear about her hunting adventures and they never mind covering for her when she needs to make a quick escape from work to reach her stand.

Perhaps one reason people are surprised to learn Kiger, Pritchard, Tart and Barlowe are hunters is that, in work or social settings, these four women enjoy dressing up, wearing makeup and jewelry and using scented shampoos and perfumes. Pritchard says, "When I hunt, I wake up in the morning, throw on my clothes, pull my hair back in a camouflaged baseball cap or put a toboggan on, and spray scent lock all over my clothes and bag. It is nice because you don't have to take long getting ready when you go hunting. No one sees you in the woods anyway. It is a very nice break from always having to dress up and look professional in your every day routine."

Kiger concurs with Pritchard, especially about avoiding scented products, which alert animals to the hunter's presence. She says, "I strive to be scent free. When hunting, I do not use my normal fruity shampoos or deodorant. I have to use scent-free products." For duck hunts, Tart dresses in clothing that does not create sound when she moves, in order to avoid spooking her prey. Although Barlowe agrees with the other women on most points, she notes, "I still like to wear my pearl earrings and makeup to hunt. After all, the photo shoot that comes after a kill is very important! I have no problem going all out in camo, though. This is especially true for turkey hunting as the birds' eyesight is incredible."

As avid hunters, Barlowe, Tart, Pritchard and Kiger hope to encourage other young women to participate in the sport, and they all emphasize the importance of safety and learning from a seasoned, knowledgeable mentor. Kiger says, "I would encourage women who do not hunt to give it a try; you may surprise yourself by how much you enjoy it. There are many different types of game to hunt and you may enjoy one more than another . . . it is a challenge, but very rewarding and fun."

"I would encourage young women to try hunting if they want to have a special and unique hobby," Pritchard said. "It does require some skill, but is an attainable activity for most women. As long as they put in the hard work and practice of shooting and learning the sport, then they can do it." Barlowe says, "I can assure potential female hunters that hunting game is an incredible feeling and they should give it a try. Just being in the woods is something I find to be both relaxing and exhilarating. It may not be for everyone, but is something I definitely enjoy."

Jessica frequently takes young aspiring hunters along with her for hunts and enjoys teaching them skills while she observes their enthusiasm for the sport, but she offers advice for anyone who wishes to become a hunter. "You should always be prepared for what may happen. During a recent hunt in a layout boat, the seas were very choppy, with 5 to 6 foot waves, then the radio stopped working and then the flashlight died. It was still fun, though."

Another young female recently became Jessica's hunting companion and although she has only been on a couple of hunts, Tart looks forward to a long hunting relationship, as well as a friendship, with Lexie, Tart's German short haired pointer. Well trained and very "birdy," according to her owner, Lexie enjoys splashing in the water and she keeps a sharp eye out for birds.

A cursory flip through the pages of any hunting supply catalog reveals many articles of hunting clothing and accessories are now geared to a female market, and Pritchard believes this is an indication that more women are becoming hunters. She is grateful for boots and clothing that are made for female bodies, as it is easier to move through the woods in attire that fits. She also finds the crossbow is relatively easy for women to maneuver and thinks more women will find this to be a weapon of choice.

Whether they hunt for sport or for food, increasingly, North Carolina is drawing women hunters to the woods. As in all sports and, regardless of participants' gender, competition is keen in hunting. As Pritchard notes, "It is pretty cool when you can say that you have killed a deer bigger than some men have."

Hunting provides a different kind of physical work and Barlowe says just being in the woods is "both relaxing and exhilarating."

Turkey hunting is Kate Barlowe's passion. She likes stocking her freezer with game meat as well as shopping for local organic produce. Her hunting mentor, grandfather Bruce Hamby, is helping her along the path to her first deer harvest.

Retired educator and freelance writer Cindy Barlowe comes from a long line of North Carolina hunters and fishermen. She and her husband, Richard, operate a small organic farm outside of Lenoir. This is her first story for Wildlife in North Carolina.

QUILLED CHARACTERS:

Shakespeare's Feathered Friends

The Bard definitely knew his birds, and can still teach us a thing or two 400 years later.

Written by David S. Lee | Illustrated by Andrea Cobb

I know this sounds absurd, but I am standing here at my kitchen window and looking out at one of William Shakespeare's birds. Darn, there is another one. This sounds a little cuckoo — OK, I'd best explain.

Act I: The stage is set

William Shakespeare grew up in a rural environment, and as with most of us, his early years made a lasting impression on him. There are countless references to nature in his plays, and his fascination with plants and animals becomes obvious as one reads through his works. Like many I suffered through a Shakespeare course in college. The reading was interesting enough, but our professor seemed determined to make the subject as boring as she possibly could. She managed to skim over anything at all that might be of relevance to her nodding students.

My high school English class exposure to the same works was becoming more appreciated by the day. What a difference a good teacher can make. As I wondered if anyone had yet made a *Reader's Digest* condensed book of Shakespeare's works, I stayed awake by keeping a running list of the playwright's references to nature as I came across them. To me his fondness for birds was particularly noticeable.

Stratford-upon-Avon, in Shakespeare's day, was a small market town in the very heart of England. Nature was everywhere. His father's house was on Henley Street, and like most homes there were orchards and garden plots on the grounds — they were referred to as "backsides." There were woodlands of elm and ash growing within the town limits, and birds and other wildlife, of course, were a common sight. Within walking distance were meadows, woodlands and paths leading to rivers. Shakespeare saw birds not as objects, but as living individual creatures, characters, if you will, with their own peculiar personalities. Well removed from day-to-day life, the forest and fields of rural England were not just a place to observe the nature of nature, but also a haven of solitude for a young and very observant boy.

Shakespeare's success was his ability to create moods that would make his audience react to the fundamental questions of life. Birds were used to enhance his thoughts regarding superstition, tradition, the human spirit and the beauty of nature. The bird images are often at the core of the clusters of ideas the author was making. Birds provided the perfect analogies for Shakespeare's take on the human experience. His sonnets, for example, focused on three reoccurring themes: the brevity of life, the transience of beauty and the trappings of desire. Each could be enriched, if not outright explained, by metaphors that used common and well-known species of birds.

Shakespeare uses birds far more often than any playwright or other authors of his period. From his combined works there are 64 kinds of birds mentioned, and there are over 600 occurrences. About 50 are ones that are familiar to those of us living in the

eastern United States. These birds provide some of his best-known metaphors and similes. It's not the bird, it's how he makes use of it. The birds are deliberately brought into his writing to draw a human parallel, and connect us, through his characters, with our fellow creatures. Of interest to me as a college student were the number of birds referenced in Shakespeare's plays and other works that occur here in the Southeast, many were common on my college campus.

In Shakespeare's time the civilized world had not yet emerged from mythology, alchemy, witchcraft and sorcery—thinking that continued into the late 1700s. Few scholars of the time were elevated above pastoral logic, and even by the 1800s science was mostly just occupied with anatomical descriptions. The system of taxonomic classification in Shakespeare's period was not even in its infancy. Serious sundry sciences of genetics, behavior and evolution had not yet begun. Objects were kept in cabinets as curiosities, and the study of natural science advanced mostly from indoor studies and academic presentations to learned colleagues. It could be argued that in some ways the playwright was well ahead of his time. His use of bird metaphors is pretty much on target, and what he writes of birds is much more than just myth-ornithology.

The humanists in Shakespeare's time had less interest than their medieval predecessors in direct observations of the natural world, and the renaissance scholars viewed the world as a strange mixture of magic and science. These intertwined schools of thought combined with folklore and fashionable subjects of the period allowed the poet and playwright considerable latitude to explore the human condition. Shakespeare used bird lore to take his audience into the various realms of magic, nature and the culture of the period.

It would be almost 300 years after Shakespeare's death before it was definitely established that house swallows wintered in South Africa. Shakespeare, along with most English academics, believed swifts, swallows and martins hibernated in underground burrows for the winter. Others wrote that their hibernation was "like that of geese"—under water. Even throughout the 1700s, the few supporting the concept of long-distance migration were regarded as very out of date. This discussion of bird hibernation seems absurd to us now, but it remained the explanation for their disappearance in winter for many centuries. Within this framework it is amazing that Shakespeare captured the behaviors and personalities of the various birds as well as he did.

Keep in mind that playwrights of the time did not write to get their works published, these works were written to be performed. A given play was no more likely to be published and made available to general readers than an episode of a TV comedy series would be today. While the Gutenberg printing press made mass publication practical nearly a century and a half prior to Shakespeare's time, his works were not widely available in written form for some time. It was only by luck that the actual words of the plays have been preserved—words that ring out as clearly to casual readers as they did when they were first performed.

Cuckoos are nest parasites, and the females of both species of European cuckoos laid their eggs in the nests of other birds and abandoned their parental duties.

For a zoology student marooned in a Shakespeare course for an hour three mornings a week, sorting out the natural history aspects of plays written between 1590 and 1603 from the soliloquies, iambic pentameter, rhyming couplets and Elizabethan English was all that kept me awake.

Act II: Avian Personalities

As I dug through some boxes that were buried in a back corner of our shed, I became amused at all the stuff I had accumulated and could not quite bring myself to throw out. It took several hours of poking about, but there it was, my college Shakespeare textbook unopened for well over 40 years. Thumbing through the pages, it was as I remembered it—references to the various birds and beasts were highlighted, underlined or circled with whatever ballpoints or colored markers had been on hand.

There I couch when owls do cry.
"The Tempest," V, 1.
O this woodcock! What an ass it is. . . .
"The Taming of the Shrew," I, 2.

Shakespeare worked a lot of behavioral traits into his avian references. He was an astute observer of the nature of animals as well as of merchants and kings. For some lines the reader best know a little about the creature itself or the point is lost.

There is no more conceit in him than is in a mallet (mallard).
"Henry IV, Pt. II,"II, 4.

I could easily visualize a male mallard strutting about, and somehow in my mind Shakespeare's character came to life.

We still do this today, but of course, to a much lesser extent. One does not need to look too closely to match a characteristic behavior of a specific type of bird with someone they know. Who do you know who is as wise as an owl? Everyone understands when some childhood friend calls you a chicken, or labels your behavior as cuckoo or loony. Politicians are either hawks or doves. Ravens, as well as rooks, are regarded as evil and used to depict dark moods. And in spaghetti westerns and Chuck Norris movies, for reasons that are only symbolically suggested, the hero is often accompanied by an eagle that flies overhead, wings outstretched. And because the Hollywood sound archive for some reason only has the scream of a red-tailed hawk, the audience hears hawk-like screams from the eagle.

Particular behaviors of the various species were matched with the point Shakespeare was trying to make. Shakespeare's knowledge of local English birds is apparent in his prudent matches to characters or situations. Shakespeare looked at birds not as a birdwatcher or a professional ornithologist, but as a person seeing them for their behavior, and how they fit into the scheme of things. The birds were often enlisted to set moods: *The birds chant melody on every bush. . . .* ("Titus Andronicus," II, 3.); *When birds do sing, hey ding a ding, ding: Sweet lovers love the spring. . . .* ("As You Like It," V, 3.); *The owl shriek'd at thy birth, an evil sign.* ("Henry VI, Pt. III," V, 6.).

At other times they were brought in to make a point: *True hope is swift, and flies*

with swallow's wings, Kings it makes gods, and meaner creatures kings. ("Richard III," V, 2.). His use of birds is symbolic, substituting them as nouns as they have more impact than mere adjectives . . . ahhhh, I hope I am not now sounding like a Shakespeare 201 professor.

Shakespeare clearly knew his birds: *"The cuckoo builds not for himself"*... and *"Thou dost o'er-count me of my father's house; But, since the cuckoo builds not for himself, Remain in't as thou mayst."* ("Antony and Cleopatra," II, 6.).

Cuckoos are nest parasites, and the females of both species of European cuckoos laid their eggs in the nests of other birds and abandoned their parental duties.

So doth the swan her downy cygnets save, Keeping them prisoner underneath her wings. ("Henry VI, Pt. 1," V, 3.). I was not too far into the semester before I realized that avian behaviors are largely unknown to most English literature teachers, and as such meaningful connections are seldom made to the students.

Some bird personalities, at least the way we perceive them, are straightforward and one-dimensional. The bluebird of happiness, for example, is . . . well, simply happy. The aforementioned cuckoo, on the other hand, can be symbolic on a number of different levels. And Shakespeare makes good use of this, sometimes even effectively using combinations of the bird's real and imagined characteristics. Superstitions regarding cuckoos abound, the birds are considered mysterious and believed to possess a gift of second sight.

"Cuckoo, cuckoo: O word of fear,
Unpleasing to a married ear."
"Love's Labour's Lost," V, 2.

And Bottom sings:

"The plain-song cuckoo gray,
Whose note full many a man doth mark,
And dares not answer nay."
"A Midsummer Night's Dream," III, 1.

It is still believed today that if asked a cuckoo will tell how long one has to live by the repetition of its calls. The country girls in Sweden count the cuckoo's calls to learn how many more years it will be that they remain unmarried. It was obviously the belief that these birds could predict time that lead to the popularity of cuckoo clocks. The clock dwelling in my living room constantly reminds me how much of each day I have squandered.

Germans consider the first spring calls of a cuckoo to be a good omen. This is also true elsewhere as the cuckoo is generally regarded as the harbinger of spring, much as the robin is in America. An old Gloucestershire rhyme states:

"The cuckoo comes in April,
Sings a song in May;
Then in June another tune,
And then she flies away."

Early Greeks believed that once the young cuckoo in the nest became full grown they devoured the parents that adopted them. This superstition came up several times in Shakespeare's plays.

In "Henry IV," V, 1. Worcester says:

"And being fed by us you used us so
As that ungentle gull, the cuckoo's bird,
Useth the sparrow; did oppress our nest;
Grew by our feeding to so great a bulk
That even our love durst not come near your sight
For fear of swallowing."

While our modern-day bird watchers would be shaking their heads wondering why anyone would care to think that a cuckoo is some type of gull Shakespeare's audience would immediately get the real point. The fact that the European cuckoos make no nest of their own and lay their eggs in the nests of other birds also appears in Antony and Cleopatra, II, 6:

"Thou dost o'er-count me of my father's house;
But, since the cuckoo builds not for himself,
Remain in't as thou mayst."

Many believed that the young cuckoos, once they are full size, swallow their foster mothers. When the young birds are being fed they open their large mouths so wide that the smaller adopting mother birds put their heads so deep into her gaping mouth that it appears that she is about to be swallowed. It's easy to see how the popular folklore suggests that the young cuckoos decapitate the heads of their parents.

In "King Lear," I, 4. the Fool remarks:

"The hedge-sparrow fed the cuckoo so long,
That it's had it head bit off by it young."

The cuckoo is also used to depict other human traits, mostly unfavorable ones, and many of these analogies date back to Greek and Roman times. For example, cuckoos are used to compare the character with a man whose wife is unfaithful. The term cuckold also frequently appears in Shakespeare's plays. His substitution of the character flaws of the birds for those who were the subjects of his plays was deliberate as Shakespeare often makes indirect accusations about English royalty. While these analogies did not exactly mask his negative feelings, they did provide

a touch of backhanded humor, and toned things down a bit. Another favorite topic that often used birds to drive home a point was the dramatic conflict with in-laws, as in real life, the theater took delight in bringing problems to the surface.

"For I the ballad will repeat,
Which men full true will find,
Your marriage comes by destiny,
Your cuckoo sings by kind."
"All's Well that Ends Well," I, 3.

In "Henry IV Pt. 1," III, 2, alluding to his predecessor, Henry IV says:

"So when he had occasion to be seen,
He was but as the cuckoo is in June,
Heard, not regarded."

Still cuckoo references don't always allude to characters lacking character or necessarily appear as a means of reproach. In "Love's Labour's Lost" (V, 2) cuckoos symbolize spring and in the sonnets the birds are used to emphasize the beauty of the season.

In North America our native cuckoos don't live in clocks, and they build their own nests to raise their young. Thus, the analogies Shakespeare makes are not in any way applicable to the cuckoos we encounter. But we must keep in mind that his plays were not written for an American audience.

Act III: The Feathered Characters:

Logically as early colonists started giving names to the various New World birds they encountered, they borrowed the names of similar looking species that they knew from England. Shakespeare lived from 1564 to 1616, as the New World was still being colonized throughout this period, the birds he refers to were not names finding their way back to England in the writings of early American naturalists, they were simply names of familiar English species. One must keep in mind this was a pre-field guides era. Linnaeus' taxonomic system had not been developed, and a wren was simply a wren. It did not matter that there was only one species in England and nine in the United States. Creating proper and distinctive common and scientific names for various species is a relatively recent thing. The one Shakespeare refers to is THE wren, a very small species, and the only one that his audience knew. Shakespeare uses the small size of the English wren to express three unrelated ideas. His analogies, even ones using this same bird, make the audience think in different directions.

The world is grown so bad
That wrens may play where eagles dare not perch. . . .
"King Richard III," I, 3.

The wren of little quill. . . .
"A Midsummer Night's Dream," III, 1.

The poor wren
The Most diminutive of birds, will fight,
Her young ones in the nest, against the owl.
"Macbeth," IV, 2.

It was not until the early 1900s that professional ornithologists began to understand that you could tell one species from another without the specimen in hand. Studies to see who is who and who is most closely related to whom are an ongoing process involving comparison of DNA in preserved tissue samples. If one becomes caught up in modern taxonomy, or are birdwatchers interested in logging in as many different species as they can, they are probably missing the whole point of Shakespeare's use of birds.

There are numerous references to familiar farmyard birds, ones that are the same domesticated species we raise today in this country. Poultry was, in fact, a major component of the diets of the English in Shakespeare's time. Shakespeare was also familiar with the hunting of game birds and the sport of hunting with falcons and hawks. The native game birds of England are all close relatives of the game species we hunt here—quail, woodcock, snipe and introduced partridges and pheasants. In addition there are a number of aquatic birds mentioned in Shakespeare's works that share their names with similar looking species occurring in the southeastern United States—loons, herons, and wild geese and ducks as well as both wild and semi-domesticated swans.

Oh slow-wing'd turtle! Shall a buzzard take thee?
"The Taming of the Shrew," II, 1.

The turtle, of course is not the four-legged reptile with its self-contained home, but the reference is to the turtledove, and to add a little extra confusion the English call their hawks buzzards. Nevertheless, most English bird names, even ones from Elizabethan times, closely match our modern American ones. Conspicuously absent from Shakespeare's works are hummingbirds, roadrunners, waxwings, towhees, cardinals and other types of birds that do not occur in England.

Several birds deserve special mention. The turkey is native to the Americas, and is about the only widely used domestic species originally from the New World. It was well established as a farmyard bird in England by Shakespeare's time. Robin red-breast (*To relish a love song, like a robin-redbreast. . . .* "Two Gentlemen of Verona," II, 1.) is the

European robin. It is a much smaller species than our American version, but its coloration is somewhat similar. On the other hand the osprey is the same species and it is a bird that has one of the world's widest distributions. There are a number of species of sparrows in both England and America. Shakespeare's sparrow was most likely the English sparrow—a bird deliberately introduced and now widely well-established throughout North America. Numerous species of gulls occur on both sides of the Atlantic, and like most people Shakespeare did not recognize them other than as generic "seagulls."

In 1871 a society was formed that was dedicated to introducing European plants and animals to North America. In 1871 Eugene Schieffelin became the chairman of the American Acclimatization Society. He was an admirer of Shakespeare and placed the European birds mentioned in Shakespeare's works on a fast track for introduction. The most notorious success was the Society's introduction of the European starling. This had been tried before with little success, but in 1890 and 1891, one hundred starlings were released in New York City. By the mid-1900s more than two million starlings were established throughout the United States and parts of Canada and Mexico. The starling introduction caused issues for a number of native birds. They evict natives and take over their nesting cavities, and huge migratory flocks have been known to cause problems for air traffic. The starling, as you recall, was a major component of Henry IV (Pt. 1) when Hotspur considered using the bird's vocal ability to drive the king mad. The Acclimatization Society claimed a number of other successful introductions, but probably none of the magnitude of the starling, and none that have caused this much ecological havoc.

Geeze, I don't think we went through all of Shakespeare's 38 plays, 154 sonnets, and long narrative poems, but it was a 9 a.m. class and on the mornings of my sophomore year it seemed like we did. Thinking back it may have been that the references to birds were what got me through that 1960s Shakespeare course. I was taking ornithology that very same semester, but I really can't think of any way that lines from Shakespeare helped me in a zoology course. Aft all these years, 'tis hard to tell.

Curtain call

We'll teach him to know turtles from jays.
"The Merry Wives of Windsor," III, 3.

But here is a thought: Let's reach out to students. It does not matter if its high school, college or grad school. I would like to think most students are actually interested in *something*, and linking math to zoology, chemistry to biology, physics to drivers ed, exploring symbolism in *Batman* comics or connecting English literature to the outdoors expands minds. And then there is history; I wonder if that relates to anything? Today's curriculum focused on better testing results often gets in the way of real learning. Educators shouldn't totally avoid the ABCs, but a little expansion of how they fit within the scheme of things might be an important tool for all levels and disciplines in education.

Maybe I should consider going back to school and taking a number of the courses that at the time seemed superfluous to a zoology major. In hindsight, we are lucky, for those of us in biological sciences it would be impossible to think of any subject that does not directly connect, and enhance, the other courses being taught in our respective institutions. Perhaps with the state's current education budget cutting we will soon need to combine a number of literature and biology classes for our liberal arts majors. Anyone signing up for Avian Shakespeare 401? It's a four credit-hour course and doesn't meet till 10:30.

And for those of us who are sadly well past the student aspect of our lives, there are all the Shakespeare Festivals that occur throughout the state, and we also have Shakespeare's birds to empty our bird feeders, and evil ones that we can watch as they cloud our skies. I wonder if today's audience of Shakespeare has the same understanding of the various species of birds as those in attendance in the 1500s. I suspect most of his avian analogies are lost on modern-day audiences.

Did the composers who rewrote Shakespeare's plays into operas and ballets work the songs and chip notes of the birds into the scores? It's just a passing question, not one that will result in me getting tickets to sit through such a production to find out. Either way they are fine. All's well that ends well. ◆

The late David S. Lee was director of the Tortoise Reserve, an international turtle conservation organization.

Shakespeare's Birds

Types of birds mentioned in Shakespeare's works that occur in both England and North America

Barnacle Goose
Blackbird
Bunting
Buzzard *(In England these are actually types of hawks)*
Cormorant
Crow
Cuckoo
Dive-dapper *(today we call them grebes)*
Dove
Duck
Eagle
Falcon
Finch
Goldfinch
Goose
Gull
Hawk
Heron *(Shakespeare also referred to these birds as handsaws)*
Jay
Kestrel
Kingfisher
Kite
Lapwing
Lark
Loon
Mallard
Martin
Osprey
Owl
Parrot *(occurred North America, and as pets in England by the 1500s)*
Pelican
Quail
Raven
Robin
Snipe
Sparrow
Sparrow Hawk
Swallow
Swan
Thrush
Vulture
Wagtail
Woodcock
Wren

Domestic Birds

Chicken, Cock
Fowl
Guinea –fowl
Ostrich
Peacock
Turkey *(Native to North America introduced as a domestic species to England)*

Birds introduced to North America

Dove *(In addition to our native doves European species have been introduced)*
Partridge
Pheasant
Pigeon *(Both native & introduced species live in North America)*
Sparrow *(In addition to our native sparrows the House Sparrow was introduced)*
Starling
Waterfowl *(Various native and domesticated ducks and swans are shared by Europe and North America)*

A LAKE LIKE NO OTHER

Tucked away in Columbus County, Lake Waccamaw boasts an impressive amount of wildlife diversity

WRITTEN & PHOTOGRAPHED by Todd Pusser

MOST NORTH CAROLINIANS associate biological splendor with such faraway places as the rainforests of the Amazon or the vast fertile plains of the African continent. For those willing to look closely, there exists a body of water right in our own back yard that is unlike any other in the United States. Nestled among dense swamps and vast agricultural lands of Columbus County in the southeastern corner of our state, the splendors of Lake Waccamaw are more subtle, but no less spectacular, than those of a humid equatorial rainforest. Diversity here is measured, not by monkeys or parrots, but in mussels, snails and diminutive fish.

Underwater view of lily pads and a cypress tree as the sun sinks low in the sky over Lake Waccamaw.

With an area of over 9,000 square acres and some 14 miles of cypress-lined shoreline, Lake Waccamaw is large—the third-largest natural lake in North Carolina in fact.

With an area of over 9,000 square acres and some 14 miles of cypress-lined shoreline, Lake Waccamaw is large—the third-largest natural lake in North Carolina in fact. With such a large body of water, many will be surprised to know that it averages less than 3 feet in depth. You can wade hundreds of yards out into the lake and never get your shirt wet. A few spots in the lake, "catfish holes" as the locals call them, reach depths of 9 to 11 feet. Shallow waters are common in the natural lakes of North Carolina. But natural lakes themselves, in the state and elsewhere in the Southeast, are quite rare. Aside from Florida, North Carolina claims the most natural lakes with 20, all within the Coastal Plain. Our neighboring state of Virginia has just two, while South Carolina, surprisingly, has none. Don't confuse natural lakes with reservoirs such as Jordan Lake in the Piedmont or Lake James in the Mountains. Though called lakes, these reservoirs are man-made, formed by damming rivers to create water supplies for nearby towns and to offer opportunities for recreation and fishing for the general public.

A MOST PLEASANT PLACE

Naturalists have long praised the beauty of the shoreline of Lake Waccamaw. Writing in his book, "A Diary of a Journal Through the Carolinas, Georgia, and Florida from July 1, 1765 to April 10, 1776," famed botanist John Bartram described the lake as "the pleasantest place that I ever saw in my life." That says a lot coming from a seasoned traveler such as Bartram, who discovered numerous new species of plants and trees in the southeastern United States and who was once referred to by Carolus Linnaeus, the father of modern taxonomy, as "the greatest natural botanist in the world." Much has changed around the lake since Bartram's time. Large homes and wooden piers dot much of the shoreline now. A dam, built on the southern shore by the U.S. Army Corps of Engineers in the 1920s, regulates the water levels in the lake.

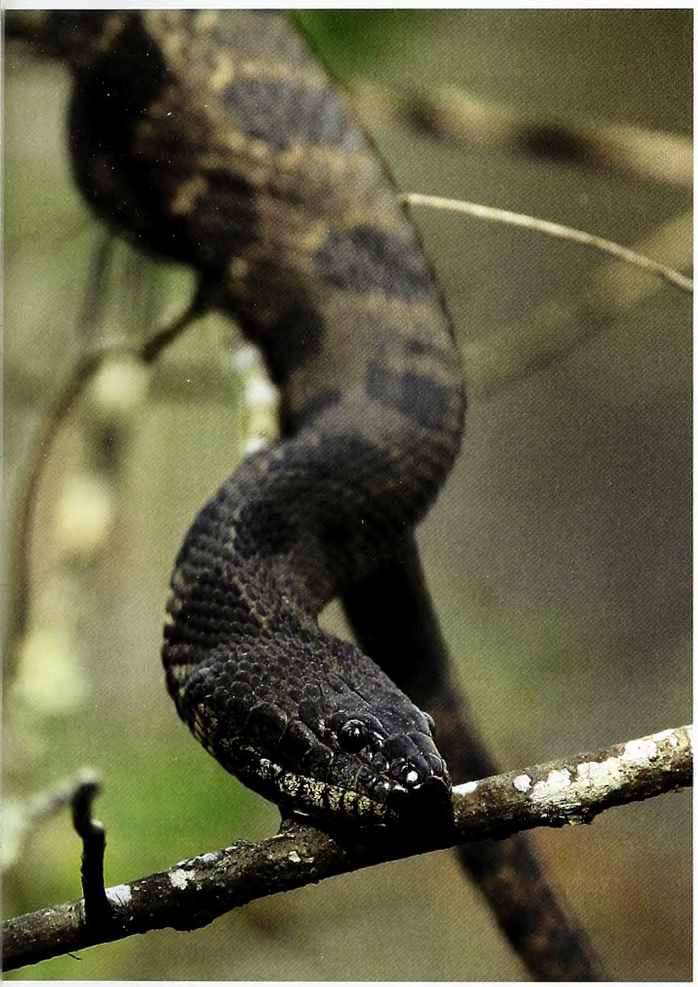
Still, large areas of the southern shore remain undeveloped and are protected by a large state park. Wildlife abounds here. Black bears roam the forests of sweet bay and pond pine adjacent to the lake. Flashes of brilliant yellow in the nearby swamps indicate the presence of prothonotary warblers. River otters play in the Waccamaw River, which flows from the lake's southern shore. Ospreys hunt the open waters, looking for large-mouth bass and bream. An abundance of turtles, water snakes and alligators can be seen in the canals and creeks.

The floral wonders that so captivated Bartram can still be found in abundance around Lake Waccamaw. Large mats of Spanish moss sway in the breeze, draped over the limbs of ancient cypress trees that dot the shoreline. Surrounding forests harbor numerous species of plants, including green fly orchids, pine lilies, water arrowhead and seven-angled pipewort, to name a few. The incredible Venus flytrap, with its propensity to dine on living flesh, so strange and unique in the plant kingdom that it prompted Charles Darwin to call it "the most wonderful plant in the world," can be found growing in the acidic soils nearby. Out in the open water of the lake, thick growths of narrowleaf pondlily sprout from the shallow sandy bottom, bright yellow flowers shining in the sun, providing shelter for schooling fish.

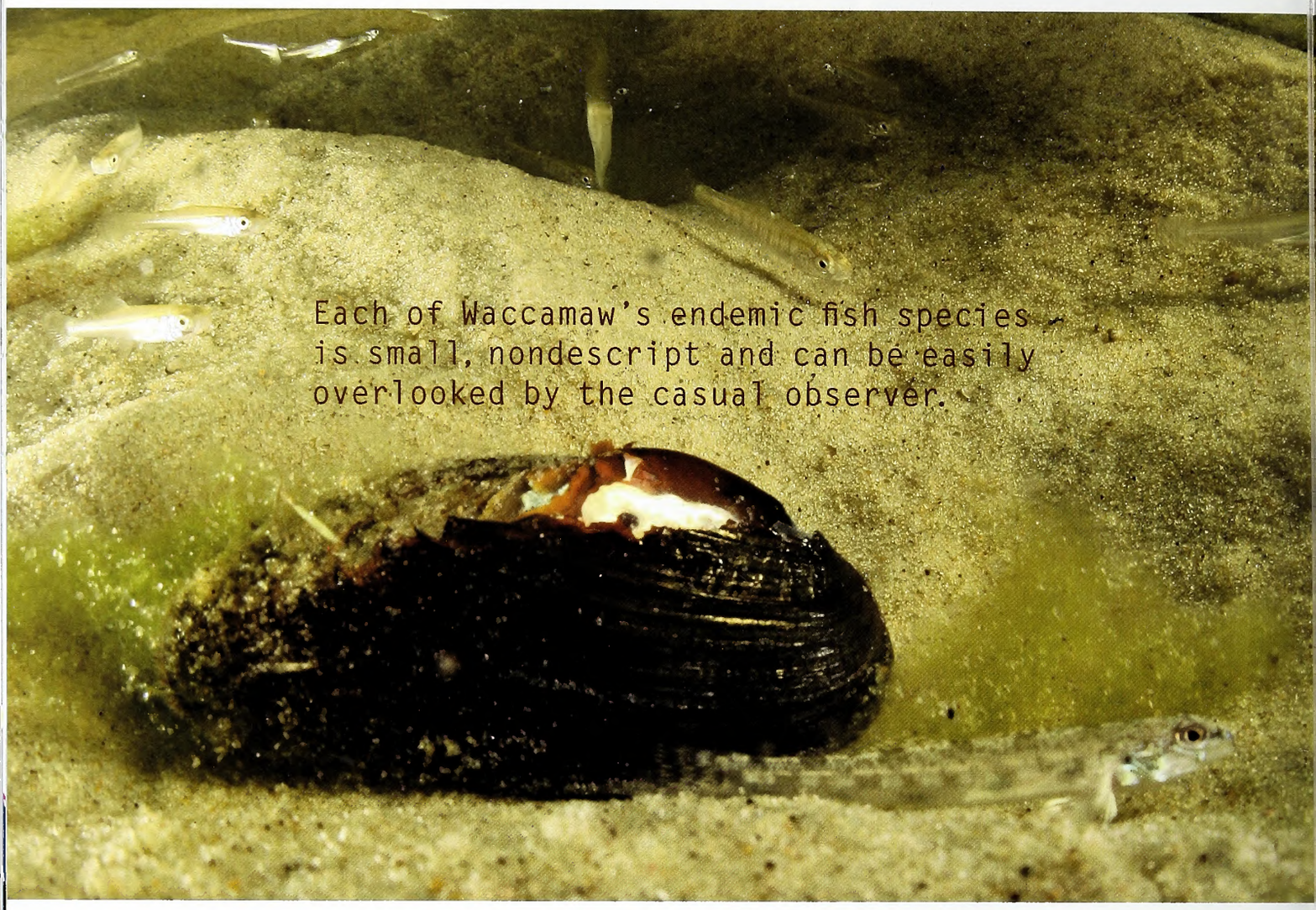
However, what sets this lake apart from any other are the critters that dwell just below the surface of this vast body of water.

SOMETHING IN THE WATER

Lake Waccamaw is the largest of the Carolina bays, unique elliptical wetlands that dot the Coastal Plain from Maryland to Florida. These depressions are called bays, not because they are open bodies of water that border the ocean, but for the variety of bay trees that grow within and around their perimeter. Some are dry, some wet, but all are oval-shaped and oriented from northwest to southeast. The bays that are filled with water, such as Jones Lake or Singletary Lake in nearby



The forests and swamps surrounding the lake harbor an astonishing diversity of wildlife. Clockwise from top left: prothonotary warbler, black bear, pine lily, river otters, Venus flytrap, spotted turtle and a brown water snake.



Bladen County, typically are so acidic that few species survive beneath their waters. Waccamaw, on the other hand, has a large limestone bluff on its north shore that acts to neutralize the pH of the water, enabling aquatic life to proliferate.

"I don't know of any other natural lakes in Eastern North America with endemics like this," says ichthyologist John Shute. "In that respect, Lake Waccamaw is quite unique!" The endemics he is referring to are three small species of fish—a darter, a killifish and a silverside—that exist only in the waters of Lake Waccamaw and nowhere else on the planet. Shute, who runs Conservation Fisheries, a facility in Knoxville, Tenn., dedicated to the study and conservation of the South's most imperiled freshwater fish, conducted surveys of the lake's fish in the early 1980s. He, along with his wife Peggy, returns annually to snorkel the shallow waters to keep tabs on the unique fish.

Each of Waccamaw's endemic fish species is small, nondescript and can be easily overlooked by the casual observer. The Waccamaw darter (*Etheostoma perlongum*), reaching a maximum length of 3 inches, hugs the sandy bottom of the lake. Look carefully as you wade in the lake during the summer months and you can see this fish dart out quickly from under your feet, swim a few feet away and come to rest on the bottom, perched on its pectoral fins. The Waccamaw killifish (*Fundulus waccamensis*) is small as well, almost the same size as the darter, and spawns in water just a few inches deep during the spring and summer months. Finally, the Waccamaw silverside (*Menidia extensa*) is a shiny, almost transparent fish that looks much like a typical minnow and reaches a length of just over 2 inches. Locals refer to it as a skipjack minnow because it skips across the surface of the water when chased by predators. The silverside forms schools of dozens of individuals and can be abundant in the lake. Shute and his wife were among the first to conduct natural history studies of the endemic fish since the description of each species by the eminent biologist Carl Hubbs in the 1940s. All species, though common in the lake, are considered vulnerable due to their restricted distribution. A decline in water quality, disease or introduction of a non-native species to the lake could spell doom for these tiny fish.

Over the last few years, Ryan Heise, an aquatic wildlife diversity biologist with the N.C. Wildlife Resources Commission, has also conducted surveys for Waccamaw's endemics as well as for a tiny uncommon catfish that calls the lake and some of the surrounding rivers home. The catfish, known as the broadtail madtom, like many of

Opposite page: A juvenile Waccamaw darter rests on the sand next to a Waccamaw fatmucket. Above left: A Waccamaw fatmucket leaves tracks across the bottom of the lake. Above upper right: Portrait of an endemic Waccamaw siltsnail. Above lower right: Broad-tailed madtoms have not been seen in many years in the lake.

Waccamaw's unique critters, is small, reaching just a couple of inches in length. Little is known about the species' natural history and, surprisingly enough, the catfish has not been formally described to science. It is likely a new species, though its presence has been known in the lake for over 20 years. Once common, the madtom now is incredibly hard to find. Heise, working closely with park rangers, created an artificial reef made of small concrete blocks with tiny openings, and placed it near the middle of the lake in hopes of attracting the tiny madtom. Despite two years of intense sampling, Heise and his crew have yet to find the elusive catfish using the artificial reef. There is a growing concern that species may well be extirpated in the lake.

One catfish that did turn up in the lake is more troubling. "We recently confirmed the presence of a flathead catfish in Lake Waccamaw," states Heise. Flatheads are native to the Mississippi river drainage and not to Waccamaw. This large species, a popular recreational fish, was introduced years ago into the Waccamaw River, which flows from the south side of the lake. Perhaps the species entered the lake by swimming over the dam that separates the lake from the river during periods of high water or perhaps was released into the lake by fishermen. However it got into the lake, the flathead is a voracious predator and if it becomes established could well wipe out the tiny fauna that make the lake so special.

Aside from the fish, the lake plays hosts to an extraordinary diversity of freshwater mollusks, including three species found nowhere else in the world. Freshwater mussels throughout the Southeast have endearingly quirky common names, and those here are no exception. Ones found in the lake and in nearby waters are known as the Waccamaw spike, rayed pink fatmucket, pond lance, yellow lampmussel, Eastern lampmussel, tidewater mucket, and Savannah lilliput. The Waccamaw fatmucket is found here and nowhere else. It is hard to step anywhere in the lake without crunching mussels under your feet. Two tiny freshwater snails, the Waccamaw snail and the Waccamaw siltsnail, are also endemic to the lake.

While mussels and snails may fail to inspire most people in the way a humpback whale or a tiger does, it is important to remember

NATURE'S WAYS

How Do Bald Cypresses End Up Growing In Standing Water? See Nature's Ways, page 43.

that these lowly life forms play incredibly important roles in healthy ecosystems. They maintain water quality by eating algae and provide food for otters, fish, crayfish, and turtles. Due to their sensitivity to pollution, mussels and snails are wonderful indicators of environmental trouble. That Lake Waccamaw has such abundance and diversity of these mollusks illustrates just how special its waters are.

THE WHALE IN THE LAKE

In 2007, local resident Cathy Neilson literally stumbled over the remains of a prehistoric whale while wading in the shallow waters near her home. Unsure of what she had found, she contacted personnel with Lake Waccamaw State Park who put her in touch with paleontologist Vince Schneider of the N.C. Museum of Natural Sciences. Working through that summer, a team of scuba divers, coordinated by Schneider, painstakingly excavated the skull of a baleen whale from the limestone substrate at the bottom of the lake. The scientists discovered that the specimen is at least 2.5 million years old and belongs to ancient group of right whales of the genus *Balaenula*.

During this time, all of eastern North Carolina, including Lake Waccamaw, was covered by a warm, shallow sea. It should be noted here that there is some debate about the origins of Lake Waccamaw and other Carolina bays. The Waccamaw Siouan tribe, who call themselves the People of the Falling Star, believe that the lake was formed by a meteor crashing to earth. While this theory is popular among some locals, there is no direct evidence that is how the lake was formed. Others think a large fire created a depression in the earth that over time became filled with rain water. One of the more colorful theories suggests that the swimming action of large schools of fish or whales caused the depressions known as Carolina bays. In light of the recent fossil find, "whale wallows" may hold more credence. However, most scientists are in agreement that Carolina bays were caused by natural depressions in the land when the sea receded thousands of years ago. Over time, some, like Lake Waccamaw, filled with water, either from rains or from rivers and streams that flowed into them.

The skull of an extinct right whale, found in the shallow waters of the lake, can be seen in the visitor center at Waccamaw State Park.

The sun sets over a broad expanse of maidencane in the shallow waters of Lake Waccamaw. Beds of this aquatic grass provide shelter for a number of Waccamaw's unique species.

It is thought that *Balaenula* looked much like modern right whales, a species that still can be seen swimming off the Carolina coast today, only much smaller with a less pronounced arch to the jaw. The specimen recovered from the lake was an adult and estimated to be only 20 feet long. Dr. Alton Dooley, curator of paleontology for the Virginia Museum of Natural History, is part of a team that is painstakingly trying to figure out the exact identity of the whale. "We're still working on the Lake Waccamaw specimen to determine whether or not it's a new species," says Dooley. "The process is a slow one, because *Balaenula* is not a well-known whale, and the only prepared skulls in the world are in Italy and Belgium." The Waccamaw specimen is the only complete skull of Balaenula ever found on the East Coast of North America and is currently on display in the visitor center at Lake Waccamaw State Park.

A LAKE TO BE PROUD OF

Beautiful scenery, a treasure trove of aquatic species and a resting place for prehistoric whales are just a few of the many defining characters that make Lake Waccamaw one of North Carolina's natural gems. The unique events that led to the formation of the lake and the circumstances by which tiny fish and mollusks colonized its waters and adapted over time to be different from any others in the world sparks the imagination.

Whether you're a naturalist, a fisherman or a boater, Lake Waccamaw's waters are open for all to enjoy. Stand on its shores on a bright sunny day beneath the shade of a towering cypress tree festooned with Spanish moss. Feel the cool breeze blow across its waters, so full of life, and unlike any other in the state. You soon will realize that Lake Waccamaw is indeed a most pleasant place. ◆

Todd Pusser is a marine biologist and a frequent contributor to Wildlife in North Carolina.

RICK SMALL

Help Yourself and the WRC

TAKING A DOE EARLY IN THE SEASON RATHER THAN LATER CAN BENEFIT THE HUNTER AND THE DEER HERD.

WRITTEN BY BRUCE INGRAM

A certain dynamic tension exists among many North Carolina deer hunters every September when the season begins. They are often torn between a desire to let does pass in order to kill a trophy buck and the longing to put a doe in the freezer in order to provide healthy, nutritious food for their families.

With the season beginning this month, what then should sportsmen do? Certified wildlife biologist Evin Stanford of the N.C. Wildlife Resources Commission offers this advice.

"When you follow buck harvest throughout the season, the peak week often occurs during the week of Thanksgiving," he says. "Buck harvest is relatively high before Thanksgiving week as well, but dramatically drops off after Thanksgiving week. Conversely, the highest week of doe harvest is consistently the very last week of the season for much of the state. Unfortunately, this is also the highest week of button buck harvest. Here are several reasons why hunters should harvest their does early in the season, if possible."

First, continues Stanford, does often "rob" hunters throughout the deer season, particularly those hunters that plant food plots, bait deer and/or supplementally feed deer throughout the season. A doe foraging in a food plot or consuming bait/feed is unnecessarily costing the hunter money and time if she is shot at the end of the season.

"Does that are harvested at the end of the season have also taken food resources off the landscape that could have been used by surviving deer, including bucks that are trying to recover from the rut," continues Stanford. "In effect, these does are robbing other deer of food resources if they are harvested later in the season.

"Does that are bred and then shot later in the season are also stealing energy from bucks during the rut. Bucks are spending tremendous amounts of energy chasing and breeding does that are harvested later in the season. That means all of this energy is basically wasted. If the doe was harvested before the rut, the buck could have spent his energy breeding does that would have had a much higher probability of surviving through the season. You can see the trend here. Does rob from hunters themselves, from all deer and from bucks specifically."

In short, better to reduce the does early to increase rutting activity later. Stanford also gives two other reason to target does now: to maintain a good buck-to-doe ratio and to help keep button bucks out of the harvest.

"Harvesting bucks early in the season and does later in the season has the potential of creating an imbalance of sex ratios during the breeding season," he says. "This can result in remaining bucks expending much more energy to breed available does and has the potential to result in some does going unbred during the primary rut.

"The result can be breeding spread out over multiple rut periods, fawns being born at non-optimum time periods, increased fawn predation due to the fawning period being spread out over time (as opposed to most fawns being born around the same time period, which basically floods predators and increases overall fawn survival), and decreased fawn condition as they go through their first winter."

Many of us hunters understandably express dismay when we harvest a button buck—yet another reason to concentrate on taking does come September.

"It is much easier to distinguish adult does from fawns early in the season," says Stanford. "Many hunters are concerned that shooting does with fawns early in the season will result in mortality of the fawns. This concern is unfounded, as our season frameworks are timed such that fawns are functionally independent by the time deer seasons open.

"Waiting until later in the season to harvest does, at a time when the size of fawns is approaching the size of an adult doe, can often result in a hunter mistakenly harvesting a fawn for an adult doe. In fact, it's ironic that many hunters don't shoot adult does early in the season because they are fearful of fawn survival, when the reality is overall fawn mortality is likely actually increased due to hunters mistakenly shooting fawns late in the season.

"While both doe fawns and button bucks can be mistaken for adult does late in the season, this is somewhat more likely to happen for button bucks. Later in the season button bucks often have slightly larger body size than female fawns, which makes them even harder to distinguish from adult does. Also, button bucks are also more likely than doe fawns to stray away from the adult doe and put themselves in situations that increase their vulnerability to harvest."

For example, continues Stanford, young males often come alone or with other fawns to open agricultural areas, food plots, bait piles and other food sources before the adult doe. A hunter seeing a fawn late in the season can often make the mistake of harvesting the whitetail under the assumption it is an adult doe, particularly if there are no adult deer nearby to use as a size comparison.

RALPH HENSLEY

Soft-mast sources such as persimmons, grapes and apples, are good to target if hard-mast sources have failed. Early season harvest of does can help keep the herd sex ratio in balance during breeding season and allow rutting bucks to breed more does.

DISTINGUISHING BETWEEN BUCK AND DOE FAWNS

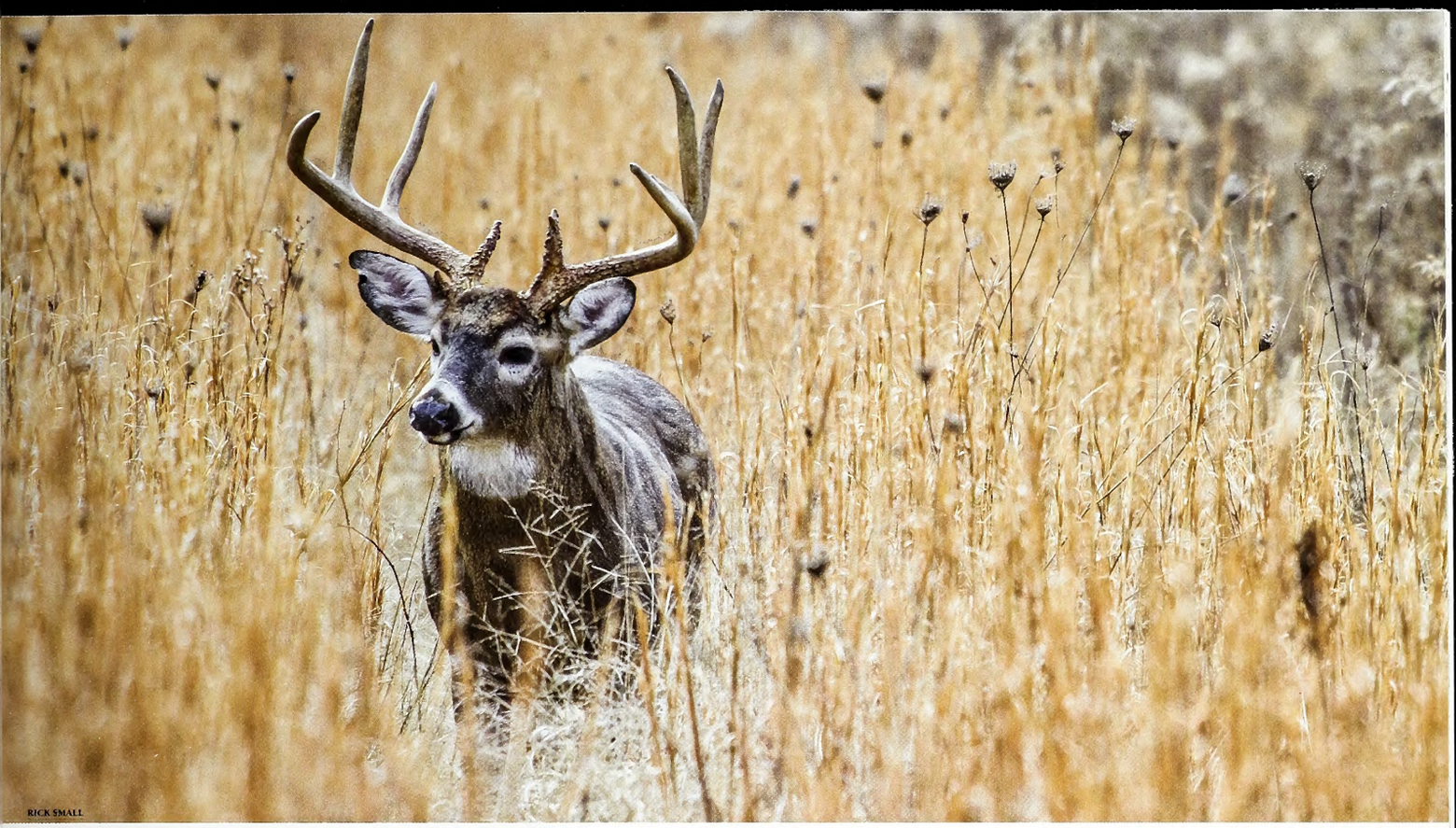
Telling an adult doe or buck fawn apart is often difficult for many hunters, including myself. Here are some tips on distinguishing the sexes, courtesy of Kip Adams of the Quality Deer Management Association and used with the organization's permission.

- Wait until at least two deer enter an area. Adults have a rectangular body shape while fawns are more square-like.
- Adults have longer necks and more muscular development than fawns.
- The above two differences are more pronounced earlier in the season—another reason to harvest early season does.
- The easiest sex trait to observe is the little nubs, or buttons, that sprout next to a male fawn's ears. The problem is that they are not always visible.
- Button bucks will often enter an opening before their sister does or mother.
- Button bucks are often larger than doe fawns, but smaller than the adult doe.
- A buck fawn's head is flatter while a young female's is more rounded.
- Buck fawns are often more aggressive and active.

EARLY SEASON FOOD SOURCES

Come September, certain food sources will come into play, Stanford says. "In the late summer and early fall period, hunters have to be vigilant about identifying white-tailed deer food sources when the acorn crop has failed," he says. "In September hunters can often find deer near agricultural crops, particularly soybeans, corn and clover where established. Soybeans are particularly attractive to deer until the late September to early October time period when soybean plants have dried up and lost palatability.

"Of course, wildlife food plots can also be prime areas to find white-tailed deer this time of year, particularly warm-season plantings such as cowpeas, soybeans, alyce clover, lablab and joint-vetch. Summer grapes are also good food sources for white-tailed deer. However, like the annual acorn crop, the summer grape crop can be hit or miss.



RICK SMALL

"Deer also browse on leaves, twigs and tender shoots of woody plants, forbs, and vines this time of year, so, hunters shouldn't overlook these food sources as well. If a hunter is having a hard time identifying what food sources deer are using, the best way to gain insight into that information is to harvest one or two deer and evaluate the stomach contents of those harvests. Doing so will immediately tell a hunter what food sources he/she should be keying on."

FOOD SOURCES AFTER SEPTEMBER

Chris Kreh, WRC District 7 wildlife biologist, says that after September much of what deer eat revolves around the presence or absence of acorns.

"During October and November any available acorns are the most preferred food item, especially white oak acorns," he said. "In the absence of an abundance of acorns, deer will use many other foods, especially persimmons and wild grapes in this part of the state."

Two of my favorite scenarios for October and November are when only a few oaks are bearing—and I've found them and positioned a stand there. And when no oaks have produced, and I've located the hot soft mast source, whether it's persimmons or grapes like Kreh says, or apples and wild cherries, just to name a few.

This past September on opening day, I arrowed a mature doe just after dawn broke. Besides being a real thrill, I was on my way to putting venison in the freezer and doing my part to help manage the herd.

STATE AREAS NEEDING HIGHER DOE HARVEST

Stanford lists the following regions/areas/counties where WRC field staff feels an increased doe harvest is warranted.

- Urban/suburban areas and the interfaces of these areas with rural areas. These are the areas where deer populations are often the highest and where most deer-human conflicts and nuisance issues occur. Specific areas include Wake, Mecklenburg, Orange, Guilford and Durham counties.
- Martin and Pasquotank counties in District 1.
- Central Coastal Plain counties (i.e., District 2), with the exception of Carteret County.
- East and south of Highway 17 in Brunswick County (in District 4).

"For most areas in the remainder of the state our staff feels that significant increases in doe harvest are not warranted," says Stanford. "Antlerless harvest has been trending upward for many years, and nowadays more than 50 percent of the reported harvest is antlerless deer. As mentioned above, many/ most of the areas with a perceived deer problems are urban/suburban areas. Unfortunately, hunting is often not effective in those areas because of local land use patterns and local laws prohibiting the discharge of weapons."

Stanford touts the urban archery season, which falls in January and February outside of the regular deer seasons, as "it is the only game in town for archery hunters." This season might be beneficial for cities experiencing nuisance issues related to deer.

"Lastly, while increased doe harvest isn't necessarily warranted for much of the state, it might be worth mentioning again that harvest of does earlier in the season is desirable," he concludes. "For most counties across our state the bulk of the doe harvest occurs in the latter part of the season. It would be advantageous if doe harvest was shifted to the beginning of the season, prior to the rut.

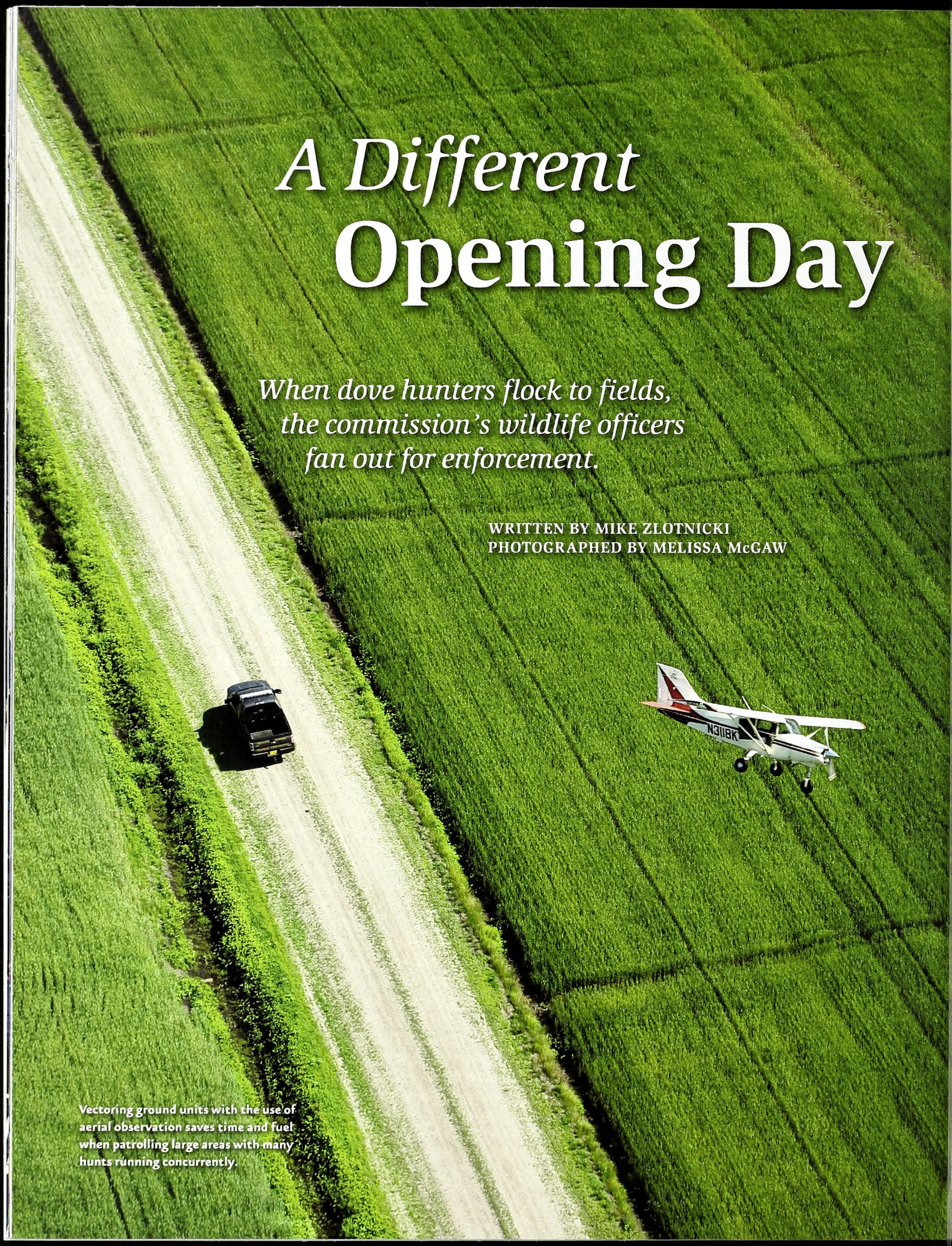
"This would help even out sex ratios prior to the rut, would increase opportunity for all does being bred during the first estrous cycle, would decrease unnecessary energy expenditure by bucks breeding does that end up being harvested after the rut, and would help increase synchronicity of fawn drop in the spring." ◆

Bruce Ingram has written five books on river smallmouth fishing. To read his weekly outdoors blog, visit bruceingramoutdoors.com.

A Different Opening Day

When dove hunters flock to fields, the commission's wildlife officers fan out for enforcement.

WRITTEN BY MIKE ZLOTNICKI
PHOTOGRAPHED BY MELISSA McGAW



Vectoring ground units with the use of aerial observation saves time and fuel when patrolling large areas with many hunts running concurrently.

IT'S AN OVERCAST MORNING as Capt. Matt Long wheels his Tahoe out of a Bojangles' drive-through in Goldsboro. A biscuit and coffee will be the start of a busy morning for the 24-year veteran of the N.C. Wildlife Resources Commission. It's the opening morning of dove season, but he won't be carrying a seat and a shotgun into the field. He's on his way to a rural airport in Wayne County to meet 12 other wildlife officers from District 3 to work a dove detail.

Master Officer Kim Knight, left, and Sgt. Kelly Brantley confer over a map book before heading out on patrol.

Master Officer Milton Grady, II set up the detail with the supervision of Sgt. Kelly Brantley. Instead of the traditional "start, stop and listen" method of locating dove hunters, Long and his fellow officers will be vectored to active dove hunts from a commission-owned Maule airplane. Prior to opening day, Grady and WRC Pilot Joey Deal flew over parts of Wayne and Johnston counties to scout fields for likely dove shoots. It's a more fuel- and time-efficient way to cover a large area with the multitude of hunters that opening day brings. They plan to start the day in southern Wayne County and work their way north, the better to finish closer to home for some of the officers.

"There'll be a mix of officers today," says Long, "trainees paired with experienced officers. Officer Grady has Wayne County maps for everyone and a list of general statutes for quick reference."

Long also says that another contingent of wildlife officers is on a stake-out involving a field where they suspected baiting of doves taking place.

When asked how an officer identifies a baited field, Long replies that there are tell-tale signs such as cracked corn, white corn kernels in a yellow corn field, mixed seeds, or lots of spent shotshells on a small field or any grain that just looks out of place. This particular field was found in the previous season and scouted by officers before today. Officers made their way in about 4:30 a.m. and are hunkered down in the woods surrounding the field. The purpose of the surveillance is to observe and identify all of the participants prior to making contact.

At 8 a.m. Deal lands and taxis to a stop. He's a tad late as he had waited for the fog to clear but still had to fly in on instruments. It takes a few more minutes for the rest of the cadre to arrive and for Grady to give a quick briefing. Shots can be heard to the south as Deal waits for the fog to clear. Sgt. Brandon Joyner joins Long in the Tahoe. With no plane in the sky the wildlife officers head out and drive for a few minutes, stop and pinpoint the first field of the day.

"With the airplane we can go from field to field," Long say. "Without it we have to hunt."

It's a short drive to a small cut cornfield. The officers park and split up to cover all sides of the field that hosts about 20 hunters. At this point there are two officers in the plane, four vehicles with two officers each and the four officers on the baited field detail. Robert Goddard of Leland had traveled to participate with some friends and greeted the officers. He had 12 doves by 8:22 a.m. and was taking a break.

"I got no problem with them," he said, nodding to the field. "They're just doing what they need to do."

Nearby Sgt. Carl Hatcher checks a hunter's shotgun to make sure it has a plug in the magazine to limit it to only three shells. In a surprise to the hunter, Hatcher is able to load a

Master Officer Brent Ward checks the harvest of a father and his daughter in a cut corn field.

fourth shell in the gun despite the hunter having installed the factory plug. As it turns out some shotguns with 3.5-inch chambers and factory plugs will accept a fourth 2¾-inch shell, and it's incumbent upon the owner to check before going afield.

"There's no difference between an unplugged gun and an improperly plugged gun," explains Hatcher. "We have to treat everybody equally. It's a violation. We'll check many people today and they need to be legal."

Master Officer Brent Ward issues him a citation and tells him to fix his gun and continue hunting. Ward says that on a typical dove detail plug and license violations, especially expired licenses, are the most common issues they experienced.

In one side of the field Richard Stokes of Wilmington is hunting with his 6-year-old son Hudson. They have four doves, three mourning doves and a Eurasian collared dove, which is legal. Hudson is pretty upbeat about the morning.

"It's fun and I get to bring my own gun," he says shyly. "But I'm better with a gun with a scope."

A little after 9 a.m. the patrol heads out. Long passes a turkey farm. "Always smelled like money when I was growing up," he says. Wayne County is home to Long, a graduate of Eastern Wayne High School. Long's father worked in the turkey business, hence the money quip. Throughout the day fields, ponds, woodlots and other places will evoke a comment or memory of having grown up in the area he is now patrolling. Soon the group pulls into a church parking lot to listen for another hunt. Deal and Lt. Wes Barger are now in the air, but opening day is loud in Wayne County and shortly they pull out and head to a noisy field.

Entering the field, Long drops Sgt. Brandon Joyner off to check hunters and drives farther down the road, where he finds Jamie Hughes of Selma hunting with his son Logan, age 9.

"How y'all doing?" Long says. "Here to check your license and birds."

Hughes produces his license and hands over a vest with a game bag. "We have 10 or 12, I reckon," he says.

Long reaches in and starts methodically pulling doves out. "...14, 15, 16 and 17," he says as he pulls the last one out. They're under their limits of 15 each. "Make sure you keep a good count," Long advises.

The quick check didn't faze Hughes. "As long as you abide by the law you have no

problem," says Hughes as Long hops across a ditch where the Tahoe is parked. "I'm just trying to get him [Logan] some shooting time. Take it easy and be safe."

Long drives around a tractor barn and finds a couple of groups on seats in the field. He checks another father and son.

"I wish more people had an over-and-under like you," he tells the boy. "It makes it a lot easier for me to check."

Long ambles over to three young men, greets them and asks to see their licenses. The first man lays his shotgun across his folding stool and pulls a paper license from his wallet and hands it confidently to Long.

Several seconds pass as Long looks at the man and then back at the license.

"You don't look like an Amber," says Long.

His friends laugh and the man scrambles to find his license, explaining that he's just taken his girlfriend fishing at the coast and had purchased her license.

Charles Visnosky of Goldsboro produced a HIP (Harvest Information Program) certification, a federal requirement for hunting migratory birds.

"I asked the lady three times for a dove hunting license and that's what she gave me," says Visnosky.

Senior Officer Jon Morgan writes Visnosky a warning ticket because he believes it was vendor error, and allows Visnosky the opportunity to purchase a license online using his smart phone before returning to the hunt.

"I was in law enforcement in the Navy," says a visibly relieved Visnosky. "That couldn't have been better. Very professional."

"Modern technology paid off," says Long as he heads back to his vehicle.

With Deal and Barger in the air the radio crackles with directions to different units working the detail as they hopscotch across the countryside. At 9:45 a.m. Long turns into a new field with trucks parked along the path that separates a cotton field and a corn field. Sgt. Joyner hops out to check hunters and Long drives to the end of the trucks, gets out and continues to check licenses and guns. Buckets, bags and vests get checked for doves. Long talks more about working a detail.

"It's about volume and compliance," he says. "It's a high-visibility patrol. It shows we're out working and not always hiding in the bushes. We'll respond to landowner calls, and I'm surprised we haven't had more of those today."

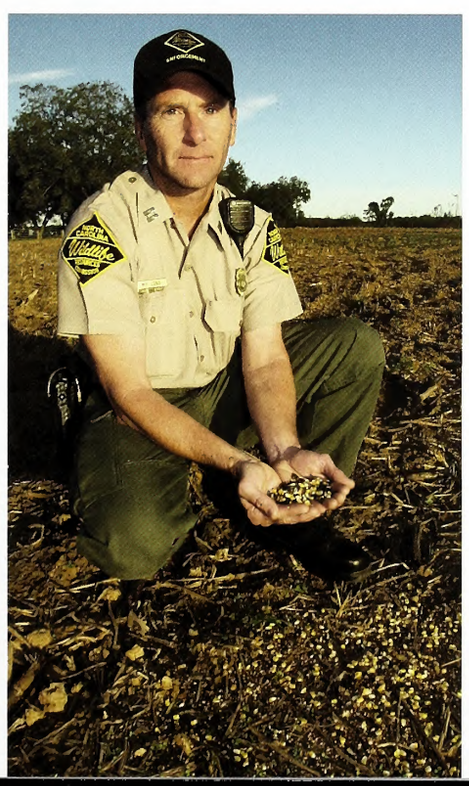
This opening day detail in Wayne County had officers from Wake, Johnston, Halifax, Wayne, Nash, Warren and Franklin counties. Long said the local officers usually write the actual citations since they're local. They concentrated on southern Wayne County because it had the best dove habitat. It has great gnat habitat as well, as the pests are legion.

At 10:30 Long pulls out of the field, drives a short distance, pulls over and awaits Barger's direction. With the season opening a half hour before sunrise, many hunters are nearing limits or lunch and the shots taper off.

"This is where the hunt-and-peck gets hard," he says. "The plane really helps when the shooting slows down. Without an airplane you can run 300 miles in a day just looking."

Long drives on and soon the plane flies into view and reports on fields that have already been checked. Thirty minutes goes by with no gun reports. One truck turns around to check on a hunt around 11:30. At 11:35 Long gets an alert from the plane about a couple of hunts near the town of Princeton. Long checks the hunters where his two-wheel drive Tahoe can go while the officers in four-wheel drive trucks drive the more questionable routes. One "hunt" that Officer Grady checks on turns out to be a deer hunter working on a tree stand. Not much is happening at noon as heat, limits and lunch have most hunters packing in.

Capt. Matt Long shows evidence of a baited dove field. Tips can be grain different than what was planted, mixed seeds and even a lot of spent shells around a small field.



During the lull Sgt. Joyner talks about his path to law enforcement. "The April '99 issue [of *Wildlife in North Carolina*] had an article titled "The School of Hard Knocks," he says. "I knew I wanted to work for state law enforcement, and that article steered me to the commission."

At 12:50 Barger radios about several hunts on the east side of Goldsboro and three trucks head out. En route Long fields a random call from a citizen on how to find her local wildlife officer in Wake County.

It's 1:10 when Long pulls into the field and checks a couple of hunters. Barger helps Long find a couple of others in the area while he's on foot.

"I like quick stops like this," he says, referring to quick compliance by the hunters. "Usually, it's the constituent who makes the check take longer." At 1:20 p.m. Deal radios about another hunt and Long and Joyner check a group of hunters from Sneads Ferry. The radio crackles again to direct Long to yet another hunt.

"We're still under a 100 miles for the day," says Long." When you're busy you don't move as much."

At 1:45 p.m. Joyner and Long check one last hunt and at 2 p.m. Officer Grady calls to end the detail on the radio. Activity has dwindled and work hours have been maxed.

It was a good day for the detail as over 100 hunters were checked. It was a bad day for one group of hunters. The hunters gunning over the baited field—except for one who never got out of his truck—were all issued citations for hunting over bait, among other violations. The district detail disperses for the day, home to showers, family and for some, hot grills. Tomorrow is a regular patrol day.

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An Outer Banks Communion

For too brief a time, father, son and friends are joined in that solitary pursuit of fishing

Written by Jay Lee

Several Octobers ago, I was invited to drive down from the D.C. area where I worked at the time to join my dad and his fishing buddies on one of their surf-fishing expeditions at Hatteras Island. I'd written about the trip to my mom in an email shortly thereafter, figuring I'd pass along some stories that she might not get herself, not knowing what she typically heard of these trips. I don't recall from childhood that she ever surf-fished or had any interest, but it was also a means of reporting on our shared, unstated concern that my dad hadn't enough time with friends, time in healthful, pleasurable pursuits in good company.

Dad took care of others—an ailing brother, aged parents and my mom, who'd suffered from a rare disease and years of painful recovery. I'd written her to share the pleasure and pride of seeing Dad in his element. She was glad for him to get away with this group of guys, and she knew his love of fishing and the Outer Banks ran deep and way back, to before they were married and he was stationed at the Weeksville Naval Air Station in the mid-1950s.

She probably heard how the weather was, if they caught fish (too often no) and maybe an anecdote or two, as Dad is good at telling a funny story. In any case, Mom had kept a copy and gave it to me several years later, long after I no longer lived in North Carolina, but still returned to the Outer Banks whenever I could, with a strong sense of place but a puzzling sense of purpose. I thought about the improbability of surf fishing.

Hey, a little fishing trip report. Dad is such a generous person, and surprisingly easy going. He seems to take pleasure in making time and small talk with the fishing crew, with laconic strangers at bait shops, slow-moving, drawling, teeth-picking fellow fishermen—men who stand around the hot hoods of their trucks and say straightforward things about fish and the weather all the while looking at the ground or off to the horizon. I enjoyed my time with him and it was good to see him among his friends, who all seem to relish these trips.

They'd rented a house well off the beach on Hatteras Island, a simple place, not one of those massive beach mansions that have sprouted up. There was lots of comment on the relative luxury of the accommodations compared to the rat-inhabited shacks on Portsmouth Island where they'd go for beach clean-ups once or twice a year, but I gathered they must have a good time sharing the adversity of those more primitive conditions. The TV was on a lot. I thought there'd be card-playing or late-night fishing or early to bed for pre-dawn fishing. They surely didn't have a TV on Portsmouth. As you might imagine there was a lot of Weather Channel watching, also the "Simpsons" (lots of identifying with Homer), "America's Funniest Videos"—a talking dog butt provoked the most laughter—and "When Disaster Strikes," montages of storms explosions, roof-ripping tornadoes, crashes set to ominous music.

The mornings featured grumbling about getting up at 5, stumbling around with gear, cup after cup of thin coffee, a kitchen linoleum floor slippery with bacon grease. Draining the bait cooler off the deck to a splatter below and several gents joking "Ah, that feels good!"; the inertia of getting seven people all moving in the same direction and questions of where we going and getting in the truck and the CB crackling "You back there?" and "Where we going?"

Everybody has their idea as to why the fishing has been poor: the weather's too warm, water's too warm, tide's going out, tide's coming in, hole isn't deep enough, etc. But one thing they seem to agree on is their opinion of the commercial fishing boats, the nets that have scooped up everything in the ocean and sound alike.

It's sad to think that these men may be fishing for fish that aren't there. The stories, Outer Banks legends, told of fish being stacked

JODY DUGGINS/NCWRC

up like cordwood, and arms being sore and fingertips raw from casting and reeling through the schools of bluefish or drum. You can begin to understand why a grown man would stand for hours, staring at the tip of his rod, squinty-eyed. Patience is learned by experience and reward but maybe it's for naught, too. Maybe such patience for fish that aren't there is maladaptive.

Maybe impatience is a good thing, gets you to move on, give it up, find other ways to entertain oneself. It's a big ocean and one casts a 4-ounce sinker with two little pieces of shrimp or bloodworm out 20, 30 yards into the surf. Then wait. Cross-eyed at the tip of your rod, the vanishing point of the horizon, the slow rhythmic tug of the waves. The crabs get fat. Pelicans wheel overhead, spin and dive to their catch, splashing into the water like a downed fighter plane. Dolphins roll by. Reel in, bait, cast. How long have I had bare hooks dangling out there in the surf?

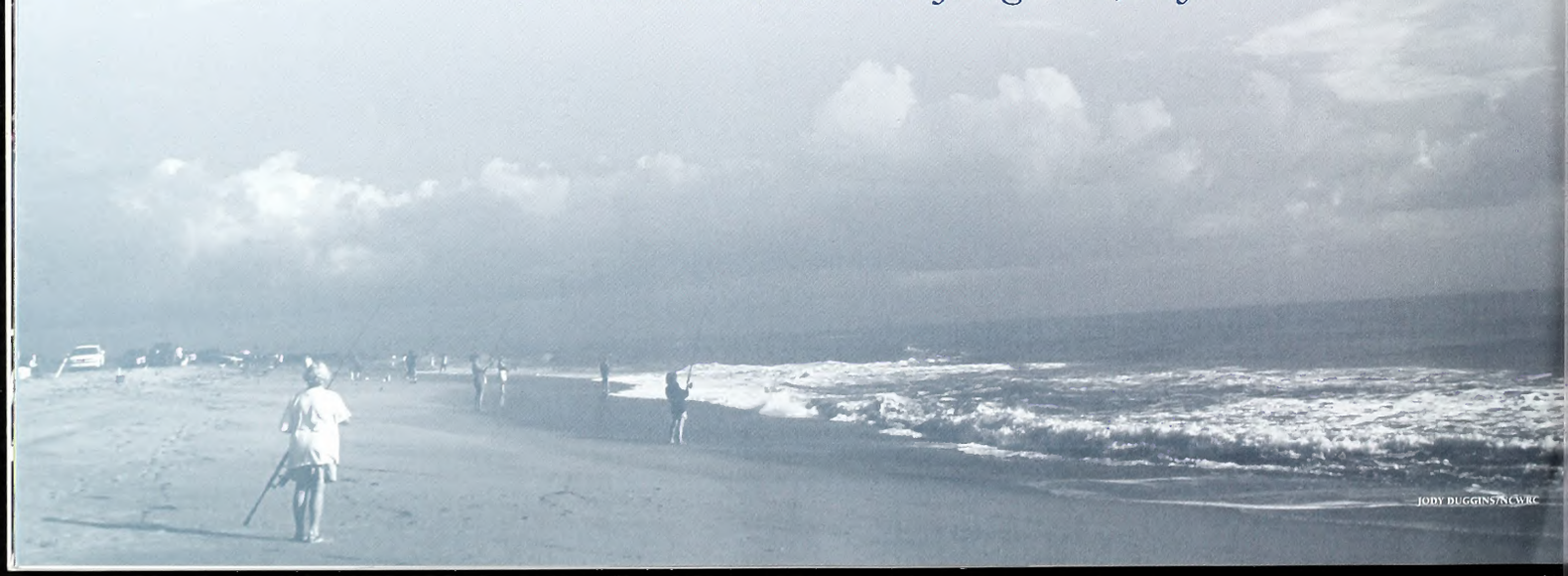
I remember being a kid and fishing with Dad down near Morehead City. He made it all happen. He'd hump all the gear out from the station wagon, bait with a gruesome, twitching bloodworm, cast for me then hand it over and direct me in a hushed tone, as if not to scare the fish, to watch the tip of my rod and feel for a strike, demonstrating by pulling on the line the difference between wave bite and fish bite. Then the waiting, the kind that is anathema in childhood. Standing still, rod anchored in a hip, even at that young age pondering the improbability that in such a vast sweeping landscape, a fish would find my bait. But it did, crazy enough, it did, and the excitement of reeling in a fish, seeing a silver flopping thing emerge from the waves instead of the rooster-tail of bare hooks and sinker, was just enough excitement to keep me at it a few more casts.

The communication that occurs between folks fishing on a beach is labored. The surf crashes and hisses, the wind buffets and carries away voices, overwhelms and deadens the senses. Everything must be said twice, three times to be heard, and finally you have to let your line go slack, or plant your pole in the rod holder and walk over, backwards so you can watch your tip or looking over your shoulder as if you are being followed, to the other person 10, 20 yards away and repeat yourself to be heard. There's the non-verbal communication men excel at I suppose, too, a wide-eyed look, a point, head shaking, a big grin, a whistle, a shrug. The element induced narcosis is broken by the chatter of a reel being wound or the drag feeding out; the sound of a fish flapping in the surf is sound you see rather than hear, a glint of silver twisting at the end of a bowed pole catches all eyes.

Everyone wears a hat except Jan, who's from a northern European country, has no belly, wears pleated khakis rolled up and a button down shirt. He could have stepped off a train. His incongruity with the group stops there, though; his zeal is the equal of any to find fish at the end of his line, and to scan and spy holes or troughs that may be running with fish. If you can be an aggressive fisherman, he is it.

4x4s roll noiselessly up and down the beach, festooned with rods and coolers on both cleverly and poorly rigged mounts. A

Isolated by the elements, but bound by landscape and good company, who continue, against most all evidence and better judgment, to fish.



JODY DUGGINS/NCWRC

wave, a nod from the passengers. The trucks can be too quiet, and one must look both ways before crossing the beach or risk stepping into a moving vehicle's path. That would be so embarrassing, to be hit by a fishing truck on an otherwise deserted beach. And it is unlikely that anyone would come to your aid until they'd reeled in their lines or finished baiting their hooks.

Back at the house, the fishing group in the house next door lays out their catch from a boat in the sound. Trout, legal flounder, in rigor mortis on a scale-flecked aged wooden cleaning table amid the house stilts. A fellow with a video camera cajoles a woman smoking a cigarette to let him film her: "If I don't get you, no one will know you were here!"

Bluefish

JOE MALAT

The next day, our neighbors' relative good luck prompts some of our crew to go out on one of the guys' small boat, while Dad, two others and I fish a hole in the surf we'd scouted the night before. I caught a sizeable mullet, Dad got excited at the prospect that we'd be getting into a school of them or that blues were driving them up the beach. Stepping it up, we fished with a new focus—bait cast wait reel — but caught only a motley mix, like a low-rent aquarium: a blowfish, a small blue, some tiny spots, a flounder that was too small to keep, a skate. I caught a colorful spiny puffer—the men came halfway over to look, grimacing, the heads shaking. I felt bad for mangling it as I extracted the hook, threw it back into the surf where it rolled around, then was relieved when it revived and disappeared.

We stopped at about lunchtime after the tide had risen and begun to fall. Lane and Dale got their truck stuck in the sand, and Dad and I walked back to help push them out. We drove back through Buxton and saw the boat crew parked in front of the ice cream place where we'd stopped the day before for banana splits. They'd given up, caught nothing and were eating ice cream cones. The ice cream place was packing huge amounts of ice cream into the cones, liquidating its inventory to close for the season.

It was fun, fish or no, for me, I thought as I drove alone north on Highway 12. The weather was due to change today or tomorrow, getting cooler and cloudy. The guys thought it might improve the fishing, but we'd already packed it in. The tops of my feet are sunburned, and I have some good memories of riding up and down the beach in Dad's truck, and standing in the surf like I did when I was a kid. I hope I can join them in the spring.

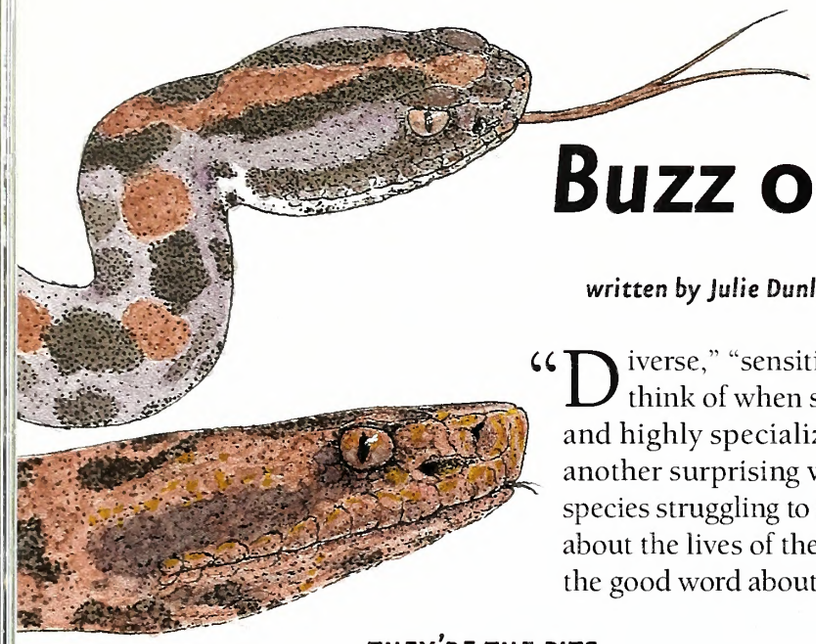
Reading this email many years later, I panic a little at how time flies by. I didn't make it in the spring, for whatever reason. Maybe the crew didn't get down like they planned, or maybe circumstance got in my way. Seems a pity now to have missed any opportunity to be at the Outer Banks under any conditions. But I'm comforted by the memory conjured up, of being part of that community of solitary pursuit. Isolated by the elements, but bound by landscape and good company, who continue, against most all evidence and better judgment, to fish.

The weather, I remember, did change in the next week, from Indian summer to frost on the pumpkin, from sun-burned tops of feet cooled in temperate surf to not imagining putting one's feet in the water.

The turning seasons and memories of this trip brought to mind again the question of why? Why surf-fish? More often than not, it seems of late, coolers return home empty of fish. And the relentless wind and cold are daunting to even the committed. My Dad and I had camped on Ocracoke Island with my Boy Scouts one October, long before the trip I recounted to my mom. And we still recall it as being the coldest we could remember being.

But there was the morning, the last day of the campout, when I caught a large bluefish, 18 pounds on my kid-sized rig, a Mitchell 301 with an 8-foot rod. I can remember the savage tug, the deadweight on the end of my line, the shadow of the fish backlit through a wave, and my dad bounding into the surf to pull it in by hand as it flopped on the icy flat whipped with sea foam. His white teeth shining from under his hat, the cold crystalline light, the wind scurrying the sand, as he raised the fish out of the water. ◆

Greensboro writer Jay Lee got his love for the outdoors from his dad. He learned to enjoy the outdoors with Boy Scout Troop 109 in Guilford College and at camp in Brown Summit. He has worked in conservation in Washington, D.C., and most recently Colombia. He lives abroad with his wife and three boys.



You've heard tall tales, myths, even horror stories about them. But here's the real

Buzz on Rattlesnakes

written by Julie Dunlap / illustrations and nature activity by Anne M. Runyon

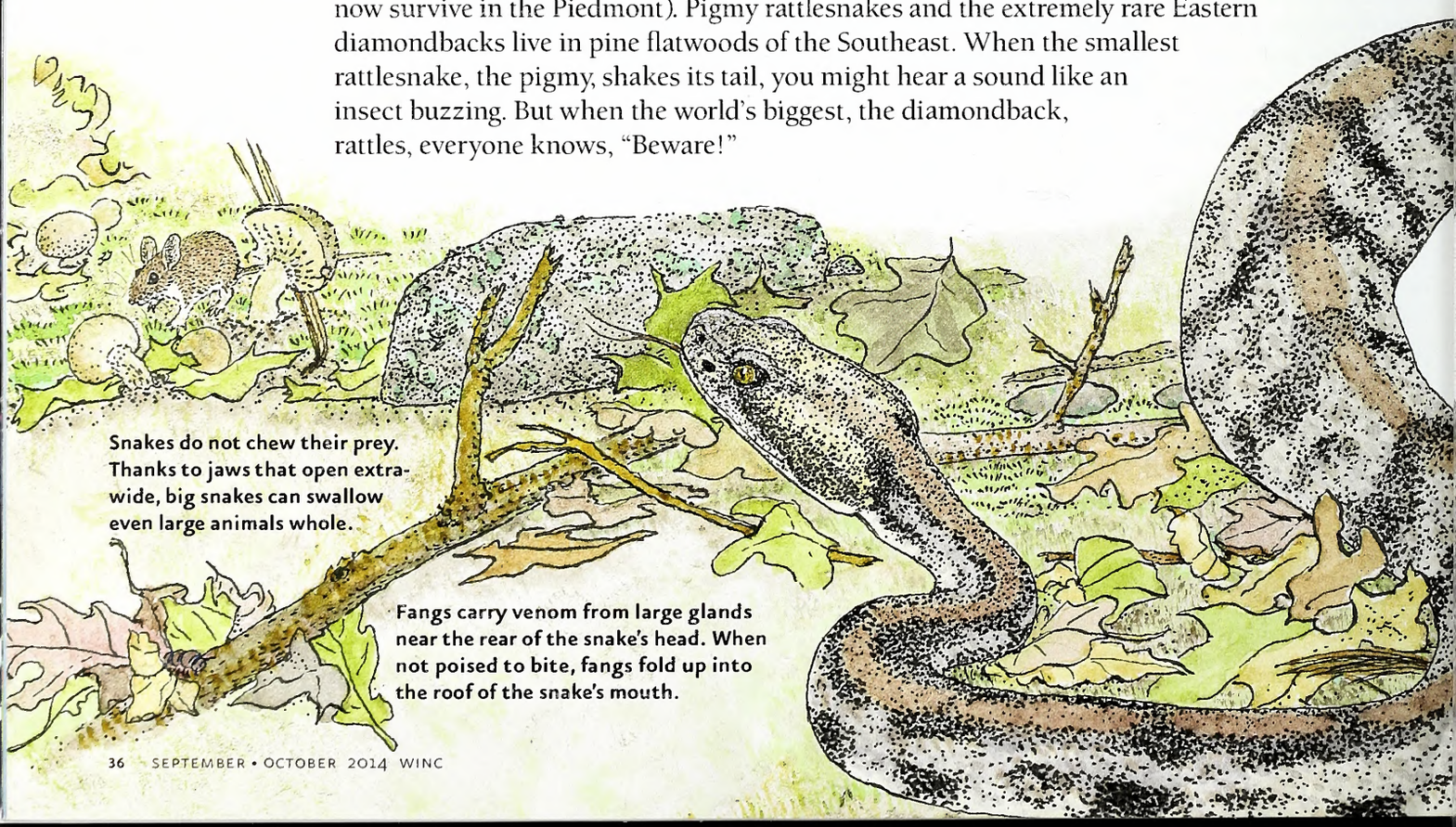
"Diverse," "sensitive" and "adaptable" may not be the first words you think of when someone mentions rattlesnakes. But these beautiful and highly specialized predators have many virtues. "Vulnerable" is another surprising word that fits them too, with populations of many species struggling to find space in a crowded world. Once you know more about the lives of these amazing creatures, you may want to help spread the good word about rattlesnakes.

Even rattlesnakes of the same species do not always look alike. Pigmy rattlesnakes occur in different colors, or morphs.

THEY'RE THE PITS

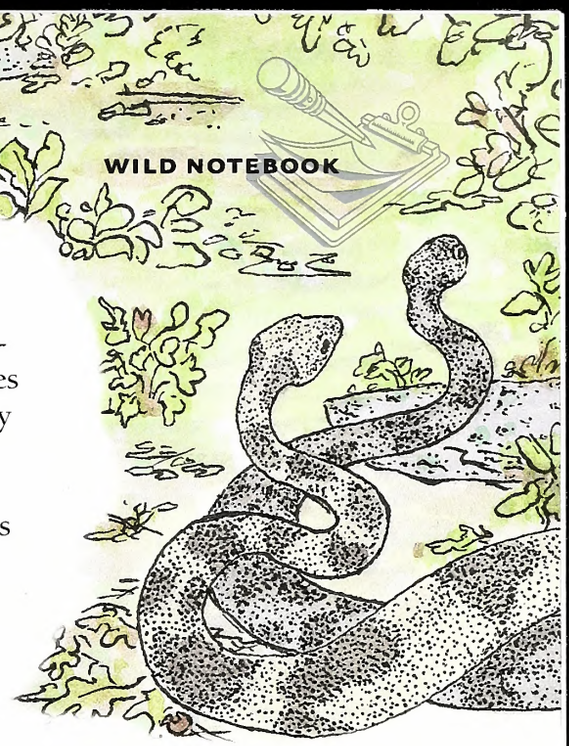
Like sharks and wolves, snakes are widely distrusted and misunderstood. And vipers may be the most feared snakes of all. Some people believe vipers kill by spitting poison. Instead, their long, hollow fangs bite deep, injecting venom like hypodermic needles into a vole or other prey animal. Especially talented at finding their targets are pit vipers, snakes with a special heat-sensing opening on each side of their heads. This sixth sense allows a hungry pit viper to detect a warm body even in pitch dark. It coils in wait until a mouse wanders by, then—it *strikes!*

The most famous pit vipers are rattlesnakes. The world's 32 species of rattlers live only in the Western Hemisphere, from southern Canada to Argentina. Size and markings distinguish different kinds, but each sports a trademark rattle on the tip of its tail. Of 37 snake species in North Carolina, only three shake rattles. Timber rattlers, or canebrakes, are the most widespread, found in forests from the Mountains to the Coastal Plains (although few now survive in the Piedmont). Pigmy rattlesnakes and the extremely rare Eastern diamondbacks live in pine flatwoods of the Southeast. When the smallest rattlesnake, the pigmy, shakes its tail, you might hear a sound like an insect buzzing. But when the world's biggest, the diamondback, rattles, everyone knows, "Beware!"



Snakes do not chew their prey. Thanks to jaws that open extra-wide, big snakes can swallow even large animals whole.

Fangs carry venom from large glands near the rear of the snake's head. When not poised to bite, fangs fold up into the roof of the snake's mouth.



Combat Dance

S-S-SENSITIVE S-S-SNAKES

Rattlesnakes cannot hear themselves rattle. Like other snakes, they lack external ears that could pick up airborne sounds. But vibrations on the ground can travel through their bodies to inner ear bones. Snakes also lack eyelids. Though their vision is not sharp, snake eyes are sensitive to movement day and night. Sight and vibrations help alert them to coyotes, kingsnakes and other enemies. Though many people see rattlers as aggressive, usually they would rather flee than bite.

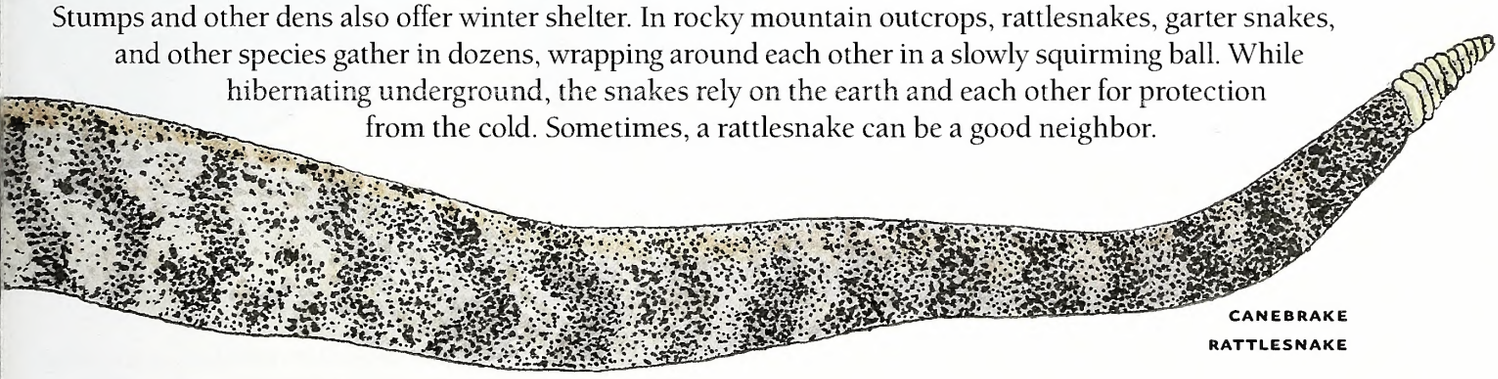
Their most powerful sense is smell. A snake has special scent detectors in the roof of its mouths called the Jacobson's organ. As it hunts, a rattler flicks its forked tongue, out and in. Not a stinger, the tongue is picking up miniscule scent particles in the air and touching them to its Jacobson's organ. Smell guides the rattlesnake to an unsuspecting rat or other prey. After a swift bite, the snake often releases the animal and waits for its venom to do its work.

HOT VS. COLD

A snake with a full belly may not eat again for a week or more. Unlike mammals and birds, snakes and other cold-blooded reptiles use little food energy to heat their bodies. That means they need fewer calories but also must rely on the environment for warmth. A pigmy rattlesnake sometimes must trade the pine woods, where camouflage keeps it safe, for a sunny spot on an open trail. And after a cool mountain night, a timber rattler may need to bask on a warm rock before it can hunt for breakfast.

Keeping cool can also be a challenge. North Carolina snakes may keep cool on summer afternoons in rock crevices, hollow logs, or dens of other animals. In a diamondback's favorite habitat, longleaf pine forests, rattlers crawl under the stumps of big old growth pines for heat relief.

Stumps and other dens also offer winter shelter. In rocky mountain outcrops, rattlesnakes, garter snakes, and other species gather in dozens, wrapping around each other in a slowly squirming ball. While hibernating underground, the snakes rely on the earth and each other for protection from the cold. Sometimes, a rattlesnake can be a good neighbor.



CANEBRAKE RATTLESNAKE

RATTLER ROMANCE

If you see two timber rattlesnakes twined together, heads high in the air, they aren't being friendly. Male fights, called combat dances, determine who will win a mate. The female rattlesnake is viviparous, which means she carries eggs inside her body and gives birth to live young. Depending on the species, her brood may include three to 21 young. The mother gives them no care because they don't need it. Their baby teeth are fangs and their venom is potent enough to kill.

But instead of rattles, the snakelets have a small bump called a prebutton on the tips of their tails. They grow fast, but their scaly skin does not, and within weeks each rubs against a rock or log and sheds its old, dull skin. The bright new covering underneath also sports a tail-tip hollow segment, or button. But it takes two segments, bumping each other when the tail shakes, to rattle. A rattler gets a new segment every time it molts, a few times per year. Segments also break off now and then, so contrary to myth, you cannot tell a rattler's age by counting its rattle segments.

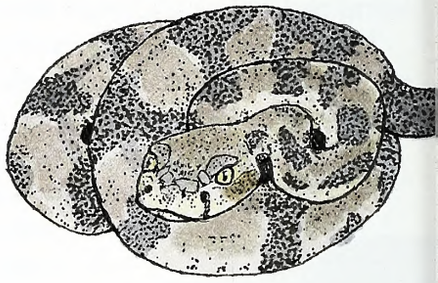
SNAKES ON THE WANE

The worst false tale about rattlers is this: "The only good rattlesnake is a dead rattlesnake." People kill venomous snakes out of fear and misinformation. Some pour poisons into hibernation dens to kill dozens at a time; some hold "rattlesnake roundup" contests that kill hundreds. People who participate may believe they are improving public safety, but instead they are destroying fascinating, beautiful predators that help keep rodent populations in check.

Habitat destruction poses an even greater threat. Agriculture and urban development have squeezed timber rattlers out of most of central North Carolina and shrinking forests have depleted populations of pigmy and diamondback rattlesnakes. Pigmy and timber rattlesnakes are now listed in the state as species of "special concern," needing more research to understand their population trends. Diamondback rattlesnakes are endangered in North Carolina, very rarely found and protected by law. Preserving rattlesnake habitat for all three species will help assure that these amazing, vital creatures will keep buzzing into the future. And that's the truth!

EASTERN DIAMONDBACK RATTLESNAKE

The fast muscles that shake a rattler's tail can make it rattle faster than a hummingbird flaps its wings.



BABY TIMBER RATTLESNAKE

Thank you to Jeff Hall, Partners in Amphibian & Reptile Conservation Biologist, North Carolina Wildlife Resources Commission, for expert assistance with this article.

Get Outside

Don't tread on these. North Carolina is fortunate to have three kinds of rattlesnakes and three other venomous snakes among our 37 snake species. Use common sense, and you can avoid painful encounters with any of them. Before you head for snake country, use a field guide with range maps to find out what snakes live there. Follow snake safety guidelines such as wearing sturdy hiking shoes and never putting your hands or feet (or seat!) on a rock, log, or other surface you cannot see well. Always hike in snake country with a companion and a cell phone. And if you see — or hear — a snake, even if you think it is not venomous, do not get close. From a safe distance, take a photo to share with your friends and tell them the fascinating truth about rattlesnakes.

Read and Find Out

- "Amphibians and Reptiles of the Carolinas and Virginia" by J.C. Beane, A. L. Braswell, J.C. Mitchell, W. M. Palmer, and J. R. Harrison III, University of North Carolina Press, 2010.
- "A Field Guide to Reptiles and Amphibians of Eastern and Central North America" by R. Conant and J. T. Collins, Houghton Mifflin Harcourt, 1998.
- "Rattlesnake Dance: True Tales, Mysteries, and Rattlesnake Ceremonies" by Jennifer Owings Dewey, Boyds Mills Press, 1997.
- "The New Encyclopedia of Snakes" by Chris Mattison, Princeton University Press, 1995.

On the World Wide Web:

- North Carolina Amphibians and Reptiles, herpsofnc.org
- North Carolina Partners in Amphibian and Reptile Conservation, ncparc.org
- North Carolina Herpetological Society, ncherps.org

Find out more about Project WILD Workshops and literature at the Wildlife Commission's website at ncwildlife.org.

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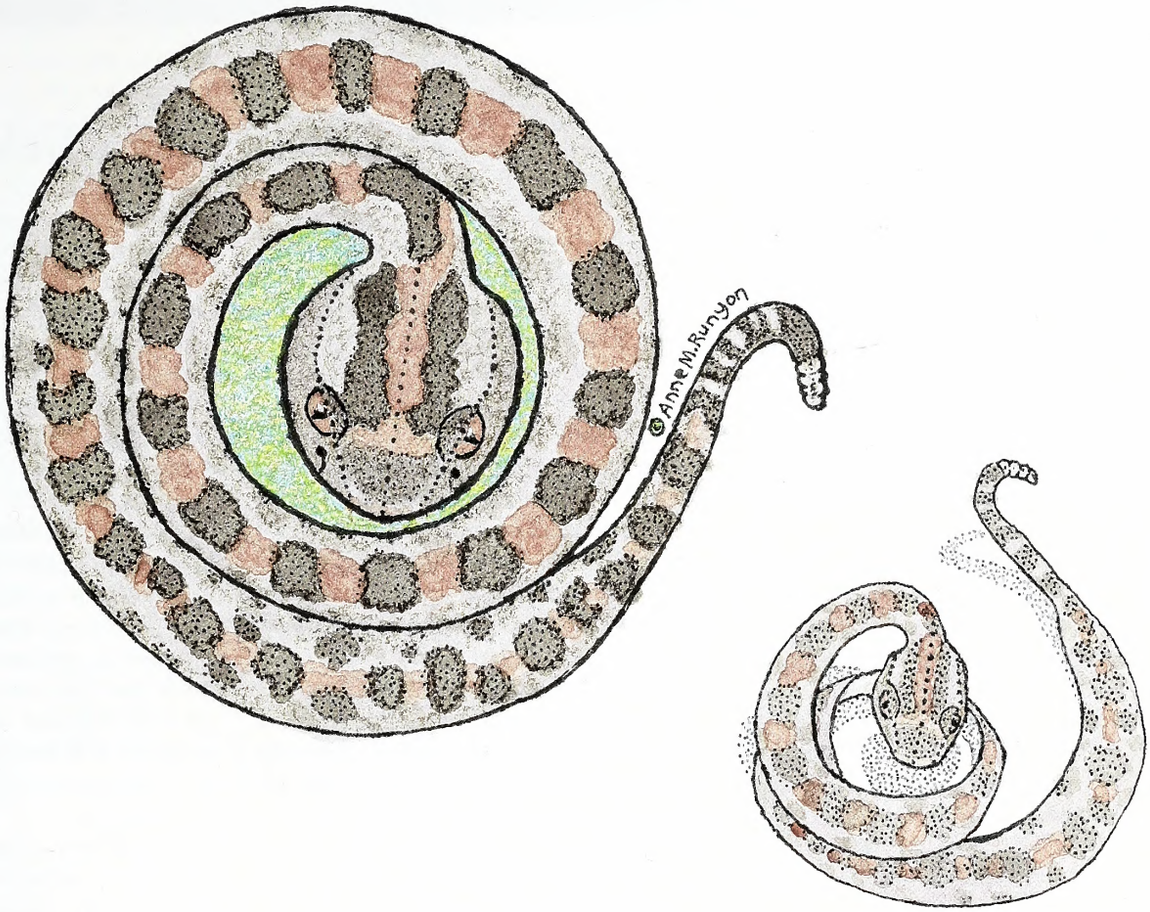
Pigmy Rattlesnake Paper Sculpture



1) Copy your rattlesnake design onto good copy paper (24 lb) at 90%.

2) Cut out the coiled snake following the outside black line.
Be careful cutting around the rattles.

3) Now cut along the interior black lines, cutting away the green spaces.

4) Gently sculpt the head.
First fold down along the dotted line in the center of the head.
Then gently pinch down along the dotted lines on each side of the head.
This lowers the eyes to the side of the head.

5) Now play with your pigmy rattlesnake.
Curl up the tail and rattles a bit.
Experiment overlapping the coils to make it look alive.
A dab of glue will hold the pose you like the best.
Your little snake is just about life-size.

Agencies Partner to Target Wildlife Traffickers

The N.C. Wildlife Resources Commission concluded a joint operation last June with partner agencies to use the Internet to protect wildlife, wildlife habitat, lawful businesses and public safety.

During the four-day "Operation Wild Web" detail, investigators used the Internet to find those intentionally selling fish and wildlife illegally, as well as committing other crimes.

Cases involved the unlawful sale of reptiles, freshwater and saltwater fish, native migratory birds and many exotic birds; businesses operating without licenses; and illegal sales of vessels.

"Licensed facilities and legal business can be checked to ensure animals are handled safely and humanely," said Capt. Rett Boyd, with the Florida Fish and Wildlife Conservation Commission, who supervised the operation. "But unlicensed facilities go without inspections for safety and cleanliness. And without a record of where they got their animals, these facilities could potentially spread dangerous diseases through their transactions, without any way to track the source of the problem."

In addition to the wildlife commissions from North Carolina and Florida, the U.S. Fish and Wildlife Service, National Oceanic and Atmospheric Administration's Office of Law Enforcement and the Georgia Department of Natural Resources participated in Operation Wild Web, addressing issues in their jurisdictions.

"We designed this operation to more efficiently protect our resources," Boyd said. "Some people may think operating online is a way to get away with taking advantage of protected species but we are dedicated to working with our partners to stop that."

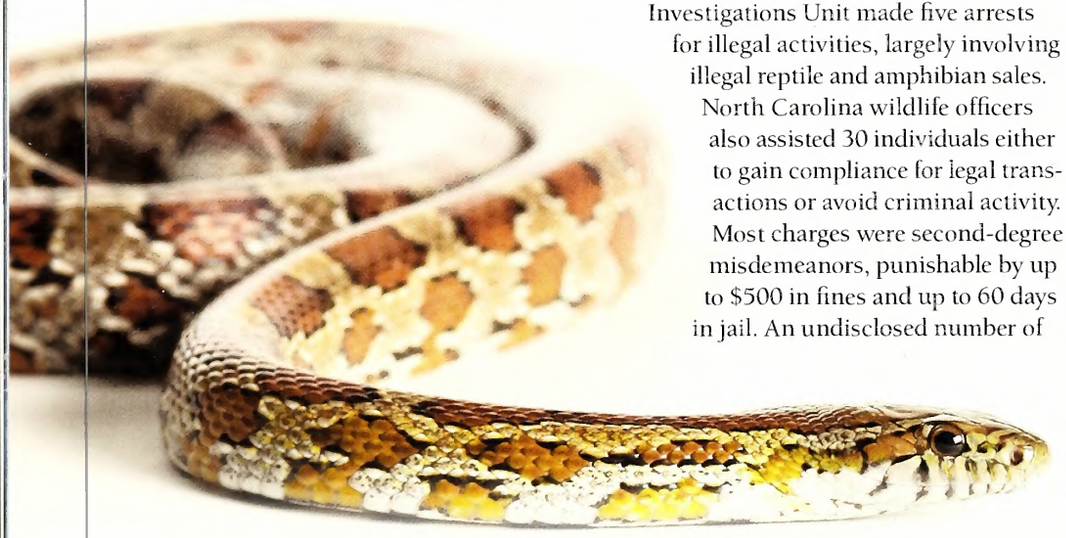
The Wildlife Commission's Special Investigations Unit made five arrests for illegal activities, largely involving illegal reptile and amphibian sales. North Carolina wildlife officers also assisted 30 individuals either to gain compliance for legal transactions or avoid criminal activity. Most charges were second-degree misdemeanors, punishable by up to $500 in fines and up to 60 days in jail. An undisclosed number of cases remain under investigation, officers said. The extent of illegal wildlife trade through the Internet is growing, and often holds the potential for state, federal, and in some instances, international laws to be broken. According to the U.S. Fish and Wildlife Service, the illegal wildlife market is a multimillion dollar, global activity.

"Traffickers try to hide behind the Internet to conduct business," said Maj. Todd Kennedy, supervisor of field operations for the Law Enforcement Division of the Wildlife Commission. "But sometimes the person they meet in cyberspace turns out to be a law enforcement officer and they are caught red-handed. This multi-state, multi-agency operation is an excellent example of the partnerships working together on behalf of conservation.

"As with any undercover investigation, there could be allegations of entrapment by those charged," he said. "Those charged were knowingly working to circumvent the law.

Individuals using the Internet to buy or sell wildlife in this state were contacted by agency representatives and advised of regulations. Our officers are diligent and all agencies take the commercialization of wildlife seriously."

Regulations applying to possession, collection, taking and transportation of reptiles, amphibians and other nongame wildlife in North Carolina are listed under the licensing webpages of the Wildlife Commission's website, ncwildlife.org. The public can report wildlife violations anytime anonymously by calling 1-800-662-7137.



Corn snakes, above, are among the many species that have been caught by illegal poaching.
MELISSA McGAW/NCWRC

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Get N.C. Wildlife Update—news including season dates, bag limits, legislative updates and more—delivered to your Inbox from the N.C. Wildlife Resources Commission. Sign up at ncwildlife.org/enews.

Inspiration Wins Big Rock

The crew of the Inspiration landed a 754.3-pound blue marlin on June 9—after a 4-hour and 35-minute fight—to win the 56th Annual Big Rock Blue Marlin Tournament held out of Morehead City. It was the third-heaviest blue marlin brought to the scale in Big Rock history.

Captain Casey Wagner of Morehead City, angler Bruce Brown of Nags Head and mate Cole Wagner, a rising sophomore at UNC-Chapel Hill and Casey's son, won $306,137. The crew had to wait as the boat Tidal Volume hooked up with just 19 minutes remaining on the last day, June 14. Tidal Volume's release at 2:39 p.m. sealed the win for Inspiration.

"This (winning the Big Rock) is something that we have aspired to ... worked toward for a long time," Wagner said in a press release, referring to the Inspiration fishing team. "Everybody that was on the boat ... we've been friends since college. It's a tight group of people who have always fished together. To have that entire crowd together and [my son] Cole as the mate ... it's just incredible."

There were seven "levels" of prizes based on entry fees. For $19,000 a boat is entered in all seven. The Inspiration was entered in six.

Eye Catcher, a Wrightsville Beach-based boat captained by Burrows Smith, finished in second place with a 606.9-pounder caught by rookie angler Randy Kelley of Wrightsville Beach. They also entered six levels and won $52,457.

Ava D, captained by Jerry Jackson of Havelock, finished third with a 491.4-pound blue marlin reeled in by Gray Hardison of Bayboro. They entered all seven levels and pocketed $345,405.

Chainlink, captained by Ralph Griffin of Morehead City, had its 412.7-pound blue marlin bumped from the leader board by Ava D, but the blue marlin caught by Ben Seegars of Goldsboro finished third in the Level III division since Eye Catcher didn't enter that portion of the tournament. The Chainlink crew won $84,150.

Dancin' Outlaw captain Thomas Wood of Harkers Island, captured the top weekly release prize and held a wire-to-wire lead in division with 1,175 points for two blue marlin releases and three white marlin releases. The boat won $77,287.

The crew of the Inspiration: Captain Casey Wagner (in khaki visor), angler Bruce Brown and mate Cole Wagner (kneeling).

Since inception the Big Rock has donated over $3 million to local charities. For more information go to thebigrock.com.

Kokanee Salmon State Record Broken—Twice

Nantahala Lake, a 1,065-acre reservoir in Clay and Macon counties, has spawned two state records for kokanee salmon in less than a week.

On June 6, Fred Mix, of Rainbow Springs, broke the existing record of 3 pounds, 9 ounces, held since 2009 by Ashley Swann, of Swannanoa, after reeling in a 3-pound, 15-ounce fish using a homemade spinner.

Five days later, on June 11, Jeffery Todd Smith broke Mix's record, catching a kokanee salmon that weighed 4 pounds, 1 ounce. He used a flasher and dodger rig.

Like many anglers in the area, Smith, who is from Mills River in Henderson County, knew that kokanee salmon are found in North Carolina only in Nantahala Lake, having been stocked in the mid-1960s by the N.C. Wildlife Resources Commission in an attempt to establish the species as a forage fish.

He said he has been trolling the lake for the last two years, hoping to catch a record-breaking salmon. On June 11, which happened to be his day off as well as his birthday, Smith finally achieved his goal, reeling in the state record fish after trolling for nearly nine hours.

He had the fish weighed on certified scales at the Ingles supermarket in Bryson City that night, and the next day, Jacob Rash, the Commission's coldwater research coordinator, examined and certified the fish.

To qualify for a N.C. Freshwater Fish State Record, anglers must have caught the fish by rod and reel or cane pole, have the fish weighed on a scale certified by the N.C. Department of Agriculture, witnessed by one observer, have the fish certified by a fisheries biologist from the commission, and submit an application with a full, side-view photo of the fish. To learn more about the state record requirements, go to ncwildlife.org/Fishing/FishingRecords/ApplyforaNorthCarolinaStateFreshwaterFishin.aspx.

CALENDAR OF EVENTS

September 5–14

The N.C. Mountain State Fair celebrates the people, agriculture, art and tradition that make the mountain region great. Its mission is to create unique experiences at an exceptional value in a safe, clean environment that is accessible to all. Monday the 8th and Thursday the 11th ride all day for $20. Learn more at mountainfair.org.

September 6–7

The 11th Annual Currituck Wildlife Festival will be held at Currituck County High School in Barco. On display, for viewing and purchase will be original paintings and prints, numerous hand carvings of various birds and wildlife, decoys for display or hunting, antique decoys, photography, taxidermy, and many one-of-a kind gifts associated with wildlife. Visit coinjockruritanclub.com for details.

September 6–7

There's an odor in the air at the 18th Annual Bugfest held at N.C. Museum of Natural Sciences in Raleigh. This year's theme bugs are stink bugs! Each year over 35,000 visitors come to BugFest to experience over 100 exhibits, crafts, games and activities. Also featured is Café Insecta, where the brave can sample buggy dishes prepared by local chefs. The best part is, it's all free! Visit bugfest.org to learn more.

October 2–4

Thirty-four years ago a small group of community leaders met and decided that they needed an event to showcase the great fall fishing the Southport–Oak Island area has to offer. Now some 400 boats fish the U.S. Open King Mackerel Tournament each year eager for the $25,000 first prizes. Go to usopenkmt.com for more.

Readers should check with the contact listed before traveling to an event. Items for listing should be conservation-oriented and should be submitted at least four months in advance to mike.zlotnicki@ncwildlife.org, or call 919-707-0175.

CWD Not Detected in North Carolina

Chronic Wasting Disease (CWD), a transmissible and fatal neurological disease of deer and elk, was not detected in a recent statewide survey conducted by the N.C. Wildlife Resources Commission.

Humans are not known to contract CWD. No treatment or cure for CWD exists. Direct, animal-to-animal contact is a means of transmission, but evidence suggests that contaminated environments and equipment also present risks.

"CWD proves devastating to populations of cervids — the family of mammals that includes white-tailed deer, elk, mule deer and moose," said Dr. Maria Palamar, wildlife veterinarian for the commission. "The indications of this survey are welcome news."

The diagnostic laboratory report was from a sampling of more than 3,800 free-ranging deer and elk beginning in 2013 and continuing through earlier this year. Biologists collected brain stem tissue and retropharyngeal lymph nodes from the animals.

"It was a successful and widespread effort to obtain samples," Palamar said. "Much thanks goes to agency field staff in all divisions, certainly, but we have to especially thank all the deer hunters and processors who provided samples. We exceeded our sample goals. The survey also provided excellent CWD educational opportunities."

CWD has been confirmed in neighboring states, with West Virginia reporting a case in 2005, followed by Virginia in 2010 and Maryland in 2011. Preventive measures are in place to reduce the risk of transmission in North Carolina, with stringent regulations governing anyone who holds captive cervids and regulations for hunters returning with hide, meat or trophies of cervids taken out of state.

For more information on CWD, go online to ncwildlife.org/Hunting/AftertheHunt/DeerDiseases/ChronicWastingDisease/tabid/375/CSSTabID/0/Default.aspx or call the Division of Wildlife Management at 919-707-0050.

CWD positive states are Virginia, North Dakota, Missouri, Michigan, New York, West Virginia, Utah, Illinois, Oklahoma, Minnesota, New Mexico, Wisconsin, Kansas, Maryland, Montana, Nebraska, South Dakota, Wyoming, Colorado, Texas, Iowa and Pennsylvania. Also, Canada's Alberta and Saskatchewan provinces have reported CWD cases.

State Fairs on the Horizon

The N.C. Wildlife Resources Commission will open State Fair exhibits in Fletcher on Sept. 5–14, and in Raleigh on Oct. 16–26 this year. Displays in the Wildlife Commission tents will highlight the diverse outdoor opportunities the agency offers the public, from hunting and fishing to boating and wildlife watching.

New this year will be an elk mount to help explain elk management work that Wildlife Commission staff is conducting in western North Carolina. In addition, tundra swan mounts will be suspended mid-air inside the tents to identify seasons and locations in North Carolina when this majestic migratory waterfowl is most often seen in our state.

Visitors to the Wildlife Commission's State Fair exhibits can pick up free copies of the agency's award-winning magazine, *Wildlife in North Carolina*. The State Fair wildlife button is a free, popular keepsake. This year features a tundra swan in flight.

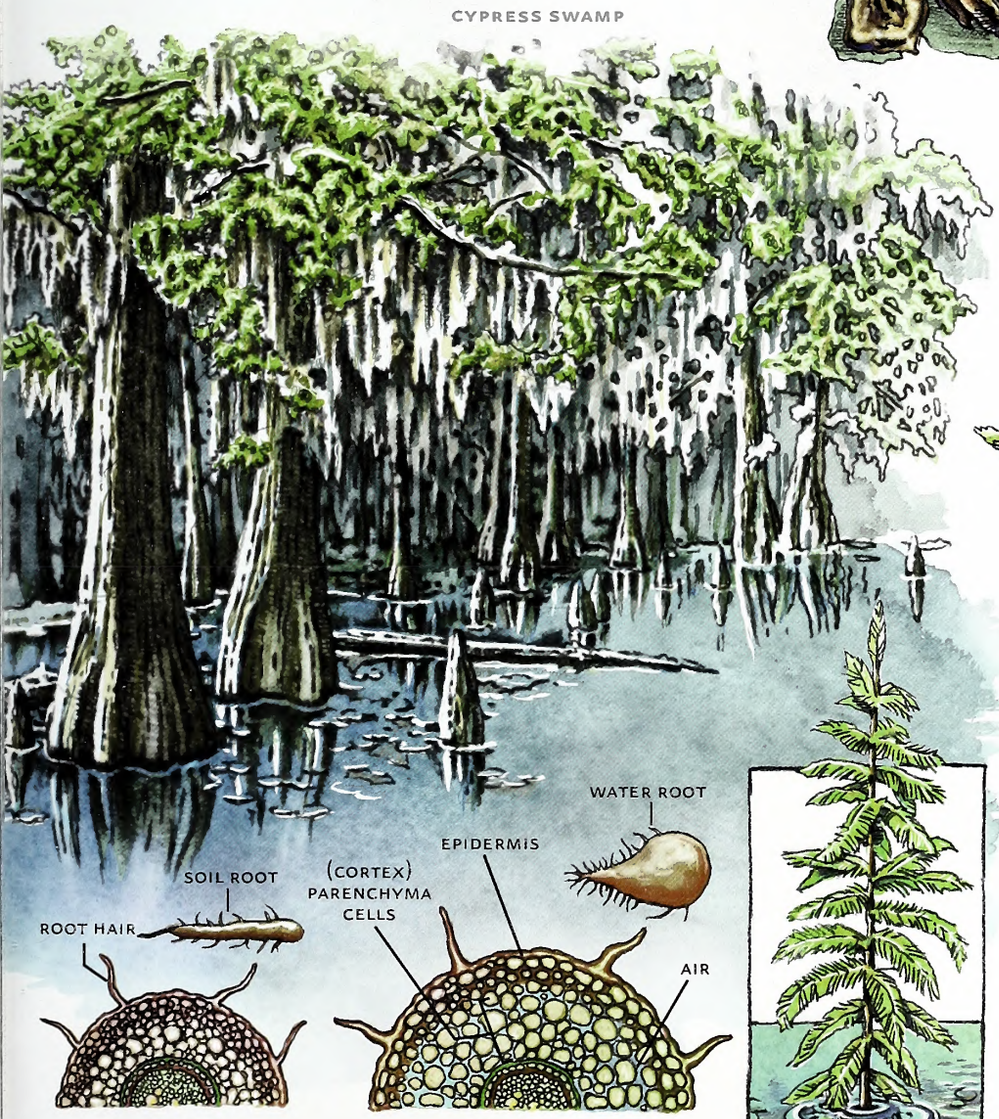
The Mountain State Fair is held annually at the WNC Agricultural Center on 1301 Fanning Bridge Rd. in Fletcher (Henderson Co.). The State Fair in Raleigh is located at 1025 Blue Ridge Road in Wake Co. More information is available at mountainfair.org and for the North Carolina State Fair visit ncstatefair.org.

How Do Bald Cypresses End Up Growing In Standing Water?

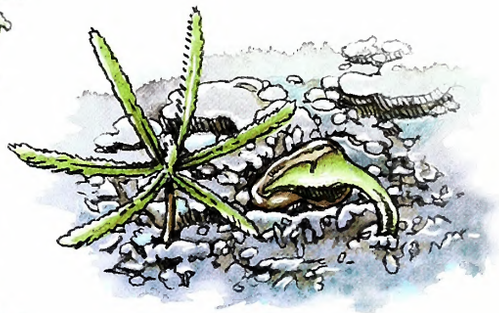
written by Clyde Sorenson
illustrated by Jim Brown

THE BALD CYPRESS DEFINES SOUTHERN WOODED WETLANDS—the stately trees, often draped in Spanish moss, and surrounded by their enigmatic knees, provide valuable habitat for fish, birds and other wildlife. The presence of cypresses does much more than add a picturesque note to a soggy landscape—they tell you much about the history of the place you are viewing.

CYPRESS SWAMP



The globular cones of bald cypresses usually mature in late fall, and then slowly disintegrate. Each scale carries two or three tiny seeds, which can live for up to a year before germinating.



GERMINATING SEEDLING

One of the most important things to understand about bald cypresses is that, while they grow very well in water, the seed can't germinate under water. If a cypress is growing in standing water, at some time, that site was not flooded. However, the seed must have a saturated soil surface in order to successfully establish—one thing that explains why cypresses don't naturally grow in upland sites.

Cypresses growing in water develop special water roots, which have a high percentage of special cells and air spaces that assist in transport and exchange of gasses, to help provide oxygen in the low oxygen-environment of a flooded soil. Bald cypress appears to grow best in areas that are shallowly, but continuously, flooded.

Since a seedling submerged in water for a prolonged period of time dies, cypress seedlings grow quite rapidly their first year, to keep some part of their developing crown above water. In a sunny site, a seedling could grow 30 inches tall in its first year.

SEEDLING STAYING AHEAD OF RISING WATER

Surf Simple

written by Jim Dean

From the deck overlooking the beach, I could see half a mile or more in either direction. Among the many midsummer sunbathers and swimmers were half a dozen surf fishermen. I watched awhile to see if they were having any luck. Even without the binoculars, it was soon evident that little, if anything, was being caught. But it was also clear, even from this distance, that many of the fishermen were making basic mistakes that greatly limited their chances.

JIM DEAN

To my left, three young fishermen had waded out past the breakers in an effort to cast as far as possible. All three were essentially standing where they should have been fishing. Closer out front, a solitary angler had a more serious problem. His casts were not even getting past the shallow suds to the breakers.

These are common mistakes many summer surf fishermen make. But to be fair, most are on vacation with their families and they often don't have enough experience to realize that they could do much better with just a few minor adjustments in tactics, tackle and bait.

"As the weather cools and summer crowds dwindle, serious surf fishermen begin to show up knowing that the best fishing of the year lies ahead."

I walked down to the beach to see if I could help. I had a 7-foot spinning outfit with 10-pound test mono and a simple homemade two-hook bottom rig (with small hooks) and a 2-ounce pyramid sinker. I also carried a sand spike, a folding chair and a cooler containing an ice block, a couple of drinks and a bag of very fresh shrimp.

"Doing any good?" I asked the solitary angler.

"Nope," he replied glumly. "Those guys haven't caught anything, either," he said pointing up the beach.

"Well, I've had good luck fishing this falling tide the last few days, and I think we can catch something," I said. "Do you mind showing me what you're using?"

A quick inspection revealed that his hooks were much too large, and though he had shrimp, it had long since spoiled lying in the hot sun on top of his tackle box.

I gave him one of my small-hook bottom rigs, and peeled and cut a fresh shrimp into four or five bite-sized pieces. "Wade out a little farther and cast just behind the inshore breakers," I suggested.

His baits had barely settled when he had a bite and reeled in a nice sea mullet. On his second cast, he hauled in a double—two fat hogfish. The three young anglers had been watching and soon joined us, swapping out their hooks for smaller ones and "borrowing" some fresh shrimp. Over the next two hours until the tide was at low ebb, we all caught sea mullet, spots and hogfish on almost every cast.

"We never would have believed that such little things could make so much difference," my new friends exclaimed happily as they lugged their heavy coolers up the beach.

Of course, there are other tactics that also work at times, but summer surf fishermen can greatly increase their odds of success with only three adjustments—use small hooks (a long-shanked No. 4 is perfect), only the freshest bait and fish just behind the inshore break. Most ocean panfish feed in a fairly narrow trough from just under the breakers to perhaps 20- to 30-feet behind them. It's also true that those fish prefer shrimp that are fresher than some we might eat.

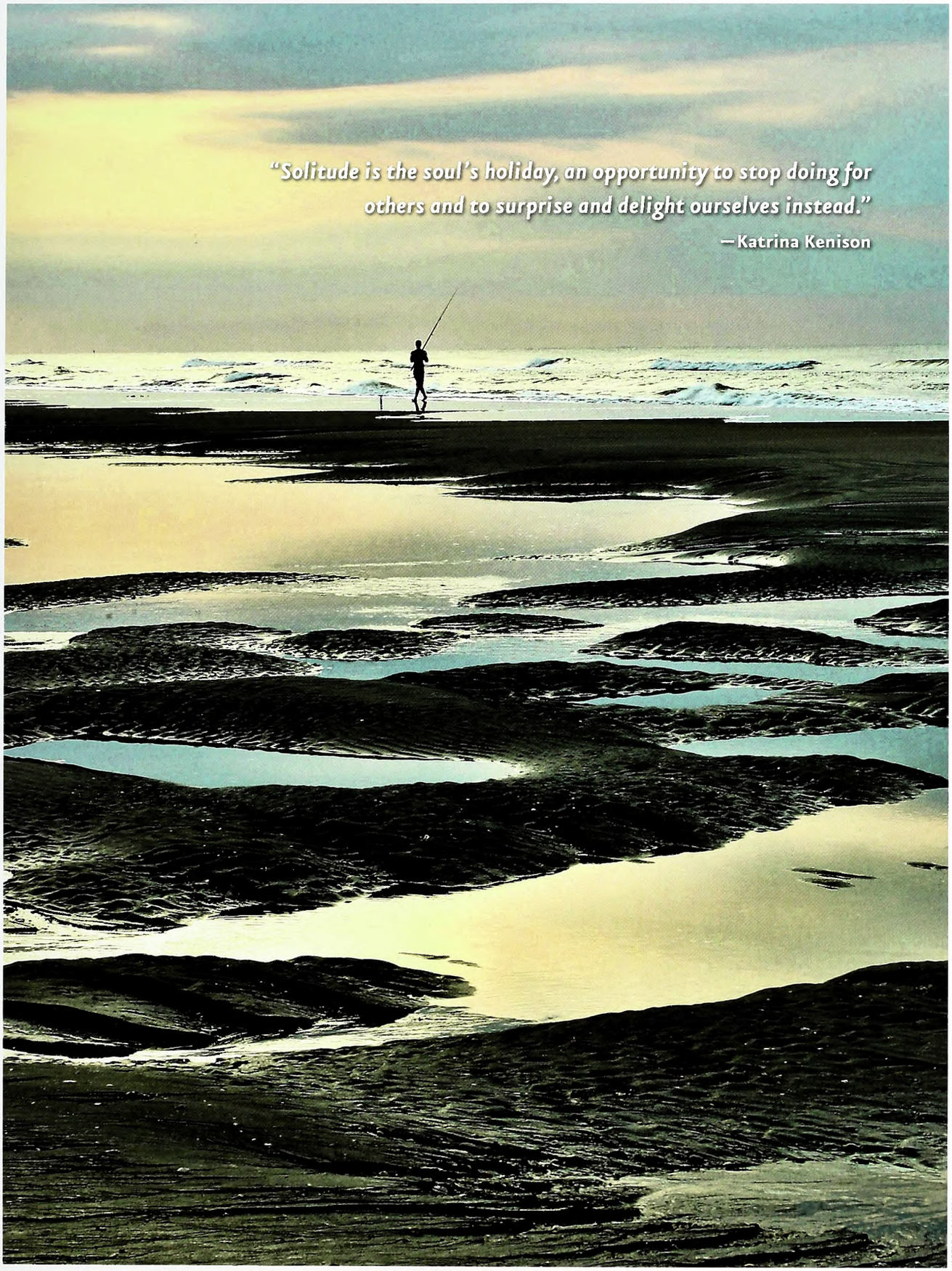
These tactics are nearly foolproof from late summer into the fall, though the species you can expect to catch may change. Sea mullet, spots, pompano, flounder and bluefish are among the most common species, and by October speckled trout and red and black drum begin to show up.

As the weather cools and summer crowds dwindle, serious surf fishermen begin to show up knowing that the best fishing of the year lies ahead. They're likely to employ a wider variety of tactics to target the species they're seeking, and many drive the autumn beaches, looking for deeper holes and sloughs where they've learned it's sometimes necessary to make longer casts.

While that simple two-hook bottom rig with fresh shrimp fished in the trough will still work, I also expand my options. In addition to shrimp, I may carry cut bait (finger mullet) for blues and drum, and bloodworms for big fall spots. I also carry a medium-action 9-foot spinning rod with 10-pound mono to make longer casts with a variety of spoons rigged with wire leaders for blues (and any Spanish mackerel still around).

MirrOlures and curly-tail grubs often work well in late fall for big specks and puppy drum (any young red drum that weighs less than 15 pounds). But my go-to choice for specks and drum is a Gulp!, a soft-bodied, artificially scented lure that's threaded onto a lead-head jig. Gulp! are deadly and my favorite color is "New Penny."

Come to think of it, those summer and early fall flounders also love them, so keep a bag of them and a few jig heads in that cooler. As an oenophile might say, they "pair well" with fresh bait and a cold beer.



ALBERT CARDWELL

Sunrise at Ocean Isle Beach

OUTDOOR MOMENT

IN THE NOVEMBER • DECEMBER ISSUE

RICK SMALL

MANAGING BLACK BEARS
Learn what's behind the changes to North Carolina's black bear seasons.

MAGIC AND MADNESS
Explore one man's love-hate relationship with one of the world's most famous flies, the Royal Wulff.

THE CHRISTMAS SQUIRREL
On a long-ago Christmas, all it took for happiness was a new shotgun, a sudden snowfall, a squirrel hunt and a grandpa's love.

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